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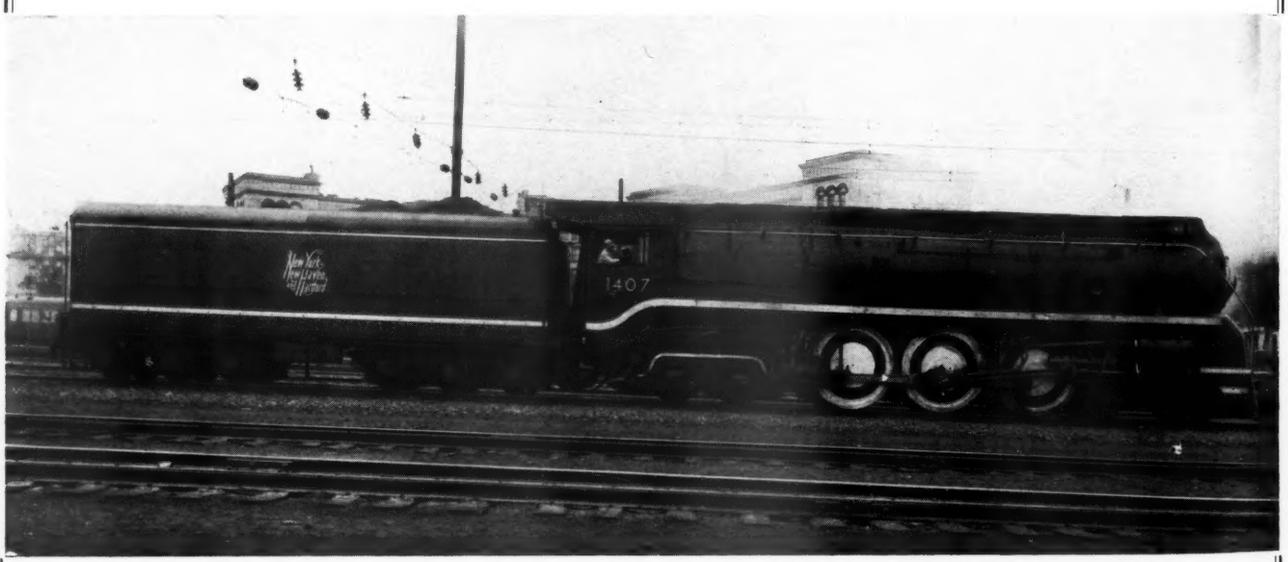

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PRINTED IN U. S. A.

THE NEW HAVEN ADDS 25,000 ELECTRIC HORSEPOWER TO BACK UP

How Alco and G.E. Serve the New Haven Railroad

Alco-G.E. motive power owned by the New Haven totals 562 units, divided as follows:

Steam locomotives	436
Electric passenger locomotives	16
Electric freight locomotives	10
Electric switching locomotives	2
2000-hp diesel-electric locomotives	20
660-hp diesel-electric locomotives	71
380-hp diesel-electric locomotives	7
Total	562

493 DIESEL-ELECTRIC MILES PER DAY!

Here is the record made by 15 of the New Haven's 2000-hp Alco-G.E. road locomotives during the year ended December 14, 1942: Total service-miles, 1,787,498—seventy times around the earth. Of this total, 40 per cent, or 729,828 miles, was in freight service. One locomotive traveled 180,000 miles, an average of 493 miles daily.

RAILWAY AGE

Efficiency FOR VICTORY

Cooperation by Shippers and Railways

Shippers and railway managements, in view of developments within recent years, may well consider whether they cannot, to their mutual advantage, broaden their co-operation in future.

Shipper and railway co-operation really began with the organization of the shippers' regional advisory boards twenty years ago. Its principal and almost sole purpose always has been to promote the most efficient practicable distribution and use of freight cars. It has been so effective in accomplishing this purpose that, especially during the last two years, even shippers and railway managements have been astonished by the resulting increases in traffic handled with virtually no shortages of cars.

There has been recently an effect of shipper and railway co-operation hardly less important than the vast increase in traffic it has enabled the railways to handle. This has been a remarkable reduction of railway costs of operation *per unit of traffic handled.* As shown in an article elsewhere in this issue, total units of traffic—freight and passenger—handled were 48 per cent more in 1942 than in 1929; operating expenses were only 3.3 per cent more; consequently, operating costs per unit of traffic handled were 30 per cent lower. Taxes *three times as great* in 1942 as in 1929 took most of the resulting large increase in net earnings from operation. But the great increase in taxes does not alter the fact that there was a great reduction of *operating costs* per unit of traffic handled. In fact, it made possible and mainly caused the increase of taxes.

The almost unprecedentedly low operating costs secured by the railways recently have been due to various causes—but predominantly to the unprecedentedly large volume of traffic handled. And one most important thing which that means for both shippers and railways should be plain. It is, of course, that the more traffic the railways can get—up to the limit of their capacity—the lower the rates they can make, and still prosper and render good service.

Most shippers have not co-operated with the railways in the past for the purpose of helping increase their traffic as a means of getting the lowest practicable rates. Many of them have followed an exactly opposite policy—that of promoting and patronizing water and highway transportation. Their theory has been that if they developed and used other carriers the resulting competition would force reductions of freight rates. This has not, in general, been the result.

Government expenditures to promote transportation by waterway and highway have diverted much traffic from the railways that they were economically fitted to handle. The resulting curtailment of *volume* on the railways has prevented the reductions of operating costs and rates that they otherwise could have made. This has enabled other carriers to maintain their rates. And meantime shippers and producers *as taxpayers* have had to bear their share of government expenditures on means of transportation.

It will be to the advantage of shippers and railway management co-operatively to study the effects that increased volume of traffic have had recently on railway costs of operation. They may both thereby find that "all is not gold that glitters"—that spending public money to multiply other means of transportation and their patronage by shippers is not necessarily beneficial to shippers, and that the level of rates is less important to railways than volume of traffic.

"Efficiency for Victory" In Freight Service Progress

The Freight Progress Annual of *Railway Age*, of which this is the fourth issue, has served purposes widely different from those originally intended. It was established in May, 1940, as a medium for telling all railways, and shippers throughout the country, what each railway, and the railways as a whole, were doing in improving their freight service. In the very next month—June, 1940—the government started its expenditures to prepare for war. Consequently, the 1941, 1942 and 1943 issues have been devoted increasingly (1) to telling how the railways, with the co-operation of shippers and government, have achieved the most amazing increases in the transportation of freight ever accomplished in the history of the world, and (2) to stating and hammering on what must be done to maintain and enhance this achievement.

The astounding record of progress made within the past three years is summarized and brought as nearly up to date as practicable in the accompanying table giving results of operation in the 12 months ending with March 31, 1940, and in the 12 months ending with March 31, 1943. It shows that with a *decrease* of 1 per cent in the total number of locomotives (including switchers) available, a *decrease* of almost 2 per cent in road freight locomotives available, and an increase of only 9.4 per cent in total freight cars on line, the railways within the three years increased by

	12 months ended March 31, 1940	12 months ended March 31, 1943	Per cent Increase or Decrease
Investment in property	$26,089,000,000	$27,044,085,000	+ 3.6
Revenue ton-miles	333,767,510,000	678,662,000,000	+103.3
Revenue-passenger-miles	23,135,375,000	62,672,442,000	+170.9
Gross earnings	4,083,595,885	8,074,338,047	+ 97.7
Total operating expenses (inc. equip. and jt. facility rents)	3,103,719,596	5,037,961,921	+ 62.3
Taxes	361,103,591	1,440,775,113	+299.0
Net railway operating income	618,100,313	1,595,601,013	+158.1
Per cent earned on investment	2.37	5.90	+149.0
Average number of employees	1,000,323	1,306,921	+ 30.6
Equipment Situation	**March 1, 1940**	**March 1, 1943**	
Locomotives—			
Total number on line (inc. switching)	42,724	42,255	- 1.1
Number in bad order	9,562	4,444	- 46.5
Number serviceable	33,162	37,811	+ 14.0
Number stored serviceable (surplus)	3,058	667	- 78.2
Number in use	30,104	37,144	+ 23.4
Road Freight Locomotives—			
Total number on line	22,478	22,048	- 1.9
Number in bad order	5,760	2,621	- 54.5
Number serviceable	16,718	19,427	+ 16.2
Number stored serviceable (surplus)	1,817	297	- 83.7
Number in use	14,901	19,130	+ 28.4
Freight cars—			
Total number on line	1,852,690	2,026,218	+ 9.4
Number in bad order	158,947	47,671	- 70.0
Number serviceable	1,693,743	1,978,547	+ 16.8
Number surplus cars	177,873	41,130	- 76.9
Number in use	1,515,870	1,937,417	+ 27.8

103.3 per cent the ton-miles of freight service rendered. And in this connection there cannot be disregarded the simultaneous increase of 170 per cent in passenger-miles of service rendered. For passenger service has to be rendered on much the same tracks and terminals as freight service; and its huge increase has enhanced the difficulties of coping with the greatly expanded demand for freight service.

The increase in the average number of railway employees was almost 31 per cent. While small compared with the increase in freight service rendered, this was large compared with the increase (or decrease) in equipment. But the increase in equipment *actually used in hauling freight* has been relatively not much smaller than in number of employees. For railway management not only, with the co-operation of shippers and government, rapidly developed means of more intensively utilizing equipment *actually in service* than ever before, but also as rapidly developed means of *getting and keeping constantly in active service* a much larger part of the total equipment available than ever was done before.

This latter point is so important that it cannot be emphasized too strongly; and it is made clear by the statistics in the table regarding the equipment situation on March 1, 1940, and March 1, 1943. The number of road freight locomotives available had declined 430. But the number in bad order was reduced 54.5 per cent, thus increasing the number in serviceable condition by 3,140. The number stored in serviceable condition was reduced 84 per cent, or 1,520. Consequently, the number actually used in hauling freight was increased 28.4 per cent, or 4,229.

Likewise, the number of freight cars on line increased only 173,528. But the number in bad order was reduced 70 per cent, thus increasing the number in serviceable condition 111,276. The car surplus was reduced 77 per cent, or 136,743. Consequently, the number of cars being actually used in hauling freight increased 28 per cent, or 421,547.

On March 1, 1940, only 66⅓ per cent of available freight locomotives and 84 per cent of available freight cars were in active service. On March 1, 1943, this had been increased to 87 per cent of freight locomotives and to 95 per cent of freight cars.

Success in so distributing freight cars that the aggregate "surplus" scattered over the entire country was reduced to only 2 per cent of the number in serviceable condition, with the result of restricting shortages here and there to trifling numbers, has been due to efficient co-operation by the railways through the Car Service Division of the Association of American Railroads and to co-operation of shippers with them. But the reductions of locomotives in bad order from 39 per cent of the total number in 1940 to 12 per cent in 1943, and of the number of freight cars in bad order from 8.5 per cent to 2.3 per cent, have been achievements of the individual railways. And these achievements, which alone, in effect, supplied 3,140 additional freight locomotives and 111,276 additional freight cars, were, under the conditions, as difficult as they were important.

In the teeth of the worst shortages of manpower and materials in history they reduced the equipment in bad order to the lowest levels in history; and, without

the serviceable equipment thus made out of many locomotives and cars previously considered ready to be scrapped, all other efforts to meet the demands of traffic would have been unavailing.

Even allowing for the increase of 28 per cent in freight locomotives and cars actually used, however, it obviously required an amazing increase in the efficiency with which they were used—loaded, unloaded, switched and put over the road in trains—to accomplish an increase of 102 per cent in the ton-miles of freight service.

The freight train is no glamour girl, like the aeroplane; but, with the aid of a good troupe, the homely freight train has been, and still is, putting on the best show of the war in this country. It was considered a great achievement when the railways produced 638 billion ton-miles of freight transportation in the calendar year 1942. But, as the table herewith shows, in the 12 months ending with March 31, 1943, they produced 674 billion ton-miles—66 per cent more than under government operation in 1918 during World War I, and 51 per cent more than in 1929, the record year between the two wars.

The railways, shippers, government agencies that have co-operated with them, and the public are justified in regarding that as one of the greatest achievements of the war period—an achievement entirely of private enterprise, and one without which none of the great achievements of either private enterprise or government during this period would have been possible.

Locomotive Utilization

An outstanding factor in the marvelous record that has been made by the railroads in handling wartime freight traffic, is the improvement that has been made in locomotive utilization. This effort was definitely inaugurated almost two decades ago by the appointment in 1924 of an A.A.R. (then A.R.A.) Committee on Locomotive Utilization. Many changes have been made over the intervening years to bring it to its present high state of effectiveness—and much more can still be done with expenditures for special facilities and the introduction of more new power of up-to-date design.

Space will permit dwelling here on only one phase of the problem—the speeding up of the movement of locomotives through engine terminals. As pointed out by F. K. Mitchell, assistant general superintendent motive power of the New York Central, in the May "Railway Mechanical Engineer," it is necessary to maintain a carefully studied balance between two opposing factors. One factor is the time which each unit is available for the actual movement of cars; the other, the fitness of the locomotive to function without delay or failure during that time. Naturally this requires a rapid and thorough inspection of the locomotive when it comes in off its run, and then a high degree of planning as to how to meet its special needs and how to handle them expeditiously. The natural tendency has been to service more quickly those locomotives not requiring special attention and to try to put them back into operation without loss of time, because of unnecessary routine or wasteful movements. The ideal has been, more and more, to give them that quick and prompt service which is characteristic of an automobile service station. Why put the locomotive in the enginehouse, for instance, if such a movement is not absolutely required or can be performed in a suitable auxiliary structure? Why draw the fires, unless really necessary?

It is a far cry from two decades ago, when locomotives were changed at every operating division, to the present-day practice, when they operate efficiently and effectively over several divisions, with changes in the engine crews. One road has locomotives which run as much as 5,000 miles without drawing the fires. It does, however, give its locomotives consideration and care comparable to that shown a racehorse. It pays well to use every resource to keep the power on the road, moving traffic, when there is a demand for every bit of locomotive horsepower available.

Don't Divide Authority

Shippers and railway management should promptly and vigorously support Director of Defense Transportation Eastman in opposing application to domestic transportation of proposed legislation to create an independent Civilian Supply Administration.

Mr. Eastman's letter to Senator Wheeler protesting against this was quoted in *Railway Age* last week. He was entirely justified in declaring it would create a "chaotic and impossible situation" in which he would be "unable effectively to carry out the responsibility for domestic transportation."

The bill (S. 885), sponsored by Senator Maloney, would give the proposed Civilian Supply Administrator authority to determine the amount and type of transportation necessary to keep the civilian population healthy and functioning. He would then apply to the appropriate government agencies for the required manpower, facilities, materials and service, and decide the civilian purposes for which they would be used.

The application of such legislation to transportation under present conditions would not be merely a gross absurdity, but an attack upon the public equally damaging to the war effort and to the welfare of civilians. As Mr. Eastman said, "these services and facilities cannot be divided and the operating units thereof earmarked or allotted exclusively to civilian use as against military use." They must be maintained and operated as a unit under concentrated direction on the principle of doing "first things first" and leaving other things to be done if practicable. Direction over them has been properly concentrated in the Office of Defense Transportation, which has wisely used its authority to aid and stimulate co-operation between carriers, and of shippers and travelers with them. The Office

of Defense Transportation, carriers and shippers have not exerted enough influence on the War Production Board to get the materials and equipment required to provide sufficient transportation. But the remedy, if any, for Congress to use is pressure on the War Production Board.

The Civilian Supply Administration under the legislation proposed would divide authority over transportation, and therefore responsibility for it, with the Office of Defense Transportation. Under present and prospective conditions, nothing worse could possibly be done.

The task of providing domestic transportation in this country has been performed better than any other task has been performed during the present war period in this or any other country. Such legislation as is proposed would discourage, confuse and demoralize, with disastrous results, the government, railway and shippers' organizations performing and contributing to that task. Congress should help them, by putting pressure on the War Production Board and the War Manpower Commission for more equipment, materials and manpower for railways, and otherwise let them alone.

Rail and Manpower — No. 1 Needs and Problems

Freight progress in 1943, for the duration, and in the post-war reconstruction period, will depend as much upon the adequacy of tracks, signaling and other fixed facilities of the railways as upon the adequacy of cars and locomotives. In the light of recent developments, it may depend even more critically upon these facilities. No one questions the need for additional cars and locomotives, and for the materials necessary to maintain those now in service. But with cars and locomotives restricted in their use without adequate tracks and signaling to move them, or adequate yard, terminal and shop facilities to handle, service and repair them, it becomes imperative that tracks, signaling and terminal facilities be not neglected.

As a wartime necessity, first things must come first; all of the elements entering into the war effort—indeed, entering into the various factors that go to make up these different elements—must be kept in balance. Today, the No. 1 need of the railways is rail. Not only those charged with the responsibility of the tracks and structures are calling for rail. The call is also being made loudly and unmistakably by railway management, with its complete picture of overall material needs. Early in April, R. B. White, president of the Baltimore & Ohio, said, "Only a shortage of steel rails can prevent the American railroads from establishing new pinnacles of wartime transportation. If we can get rails from the mills, the resulting ton-miles will make history."

Late in the same month, Ralph Budd, president of the Burlington, speaking at the conference on Wartime Transportation Problems of the Chamber of Commerce of the United States, said the railroads have reached the point where they need "three things vitally," and the first of them is track rail—with locomotives and cars the runners-up.

In the face of such statements, the War Production Board, which allotted to the railways less rail than their essential minimum needs in 1942, and which for the first half of 1943 allotted only 83 per cent of the railways' essential requirements for this basic material, is understood to have slashed further the third quarter allotment to a tonnage approximately 62 per cent of what the railways requested as essential to their needs in that quarter.

In the light of the foregoing, rail still remains the No. 1 problem. Unquestionably, a close second, if not the No. 1 problem on many roads, and in many localities on many other roads, is that presented by the shortage of manpower, especially in the maintenance of way department. Many maintenance officers place the need for manpower ahead of rail, because they know that additional rail would be of little avail to them without manpower to lay it—and just that situation prevails at some points now. Still more critical is the widespread shortage of manpower in many areas, with little hope of remedy, that is holding up even the adequate maintenance and preservation of the invaluable rail already in track.

These rail and manpower problems are both discussed in articles appearing in this issue. They cannot be side-stepped without risking a breakdown of transportation, which Director Eastman of the Office of Defense Transportation characterized recently as "the blood brother of production and modern warfare." To the fullest extent to which the solution lies within the ingenuity, energy and ability of the railways themselves it will be found. Beyond that, the railways have every right to expect relief from those government bodies that control the over-all material and manpower supplies of the nation.

Freight Car Conditions

To develop some basic information regarding freight car conditions and their probable trend during the balance of 1943, *Railway Age* recently supplemented its own studies with opinions solicited from railway officers and private car company representatives responsible for the maintenance and use of freight cars. The consensus was that, with the exception of tank cars, and to a lesser extent open-top cars, the supply of cars will not constitute a limiting factor in transportation in 1943.

With car surpluses abnormally low, freight car equipment operating at near peak capacity, and only small percentages of promised new equipment in sight, however, it is going to be a close race between supply and

demand. The situation calls for a further tightening of belts by railway men and shippers alike; and the possibilities of more efficient use of equipment are admittedly limited owing to highly successful efforts already made.

Present trends must be changed if undesirable results are to be avoided. Mileage is being run out of cars considerably faster than it is being restored by new equipment and heavy repairs to existing equipment. Only 4,657 new freight cars were placed in service in the first quarter of 1943—less than 25 per cent of the 20,000 new cars authorized for construction during the first half of the year; and the cars authorized were less than 25 per cent of the number the railroads originally estimated they would need. No new car allocations have been announced for the last half of this year or the first half of 1944; and if railroads now show some willingness to swap freight car steel for steel to be used in rails or motive power, it is only because of the still more urgent requirements for rails and motive power.

The urge to keep the maximum possible number of available cars hauling freight has made it necessary for many railroads to greatly curtail or discontinue programs of heavy repair work, which is the most effective means of restoring the service life of cars. The reported reduction in bad order cars from 3.2 to 2.3 per cent in the year ending April 1, 1943, is far from an unmixed blessing. It shows what the railroads have done to keep equipment in service; but experienced car department officers say that the all-time low in bad orders reported has been accomplished by returning to service large numbers of cars before all the repairs needed, or at least desirable, had been made. As a result, many loaded cars are being carded "bad order" at interchange points and many loads must be transferred on account of defects which obviously must have existed prior to loading.

A large volume of light repair work of a more or less temporary nature is being done to keep cars moving. The indications are that drastic action will be required in the near future to retire worn-out cars and get enough new equipment in service so that heavy car repair programs can be re-instated. Otherwise excessive load transfers, equipment failures and prohibitive delays to the movement of war materials are a definite prospect.

There are alluring possibilities for improved freight car design and construction in the post-war period. Materials and improved fabricating methods developed to meet war requirements will be looking for an outlet and extensive peacetime use. Car builders, now engaged on war contracts, are working to close tolerances and using new manufacturing techniques which will be adaptable in some degree to the construction of new cars later. The reduced unit costs of strong alloys of steel and aluminum will after the war greatly widen the field of economical usefulness of these materials and permit designing and building freight cars to new standards as regards weight, strength and durability.

Advertising Freight Service

From the inception three years ago of our program of annually reviewing the progress made by the railways in improving their freight service, we have recognized that shippers comprise a most important and interested class of readers of this annual issue. We have, therefore, each year supplemented our mailing to subscribers, who include traffic managers of many large industries, with a large distribution to traffic managers of other industries. Thus the story of the remarkable progress made in improving and increasing railway freight service is being told to shippers controlling more than 90 per cent of the country's freight traffic.

The railways have been quick to appreciate the value of this annual issue as a means of informing shippers of the progress being made, with their co-operation, by the railway industry as a whole. The railways have been almost as quick to appreciate the desirability of supplementing the over-all industry story told in our editorial pages with individual statements regarding their own services; and advertising of many railways has appeared in each of the annual issues. In this fourth annual issue 57 individual railways, representing 85 per cent of the mileage of the country, have taken 97 pages to tell their own stories to the nation's shippers. This railway representation—the largest that has ever appeared in any single issue of the *Railway Age,* and larger than has ever appeared in any other magazine—is a significant development in the merchandising of railway service.

When we first presented to the railways three years ago the view that they had a story to tell shippers in advertising, many, perhaps most, had never before done any advertising of freight service, but had confined it to the promotion of passenger traffic—this in spite of the fact that as a whole they derived more than 80 per cent of their income from handling freight. There has since been a marked change. Many roads have awakened to the possibilities of advertising as a means of securing shipper co-operation and developing freight business. One needs only to glance through magazines reaching business executives to realize the extent of this awakening, for which we believe that the Freight Progress issues of *Railway Age* can claim much credit.

While passenger service furnishes the glamour, it is freight earnings that pay the bills. It is vital to the future of the railways, therefore, that they establish and maintain the closest possible relations with all classes of shippers. The present is a particularly opportune time for doing this, for shippers are now alert to their interest in good railway service.

The shipper's attention to railway performance and progress has a vital bearing on the success of steps being taken to cope with the present crisis. If encouraged and intensified, this interest can develop into a power of deep significance in the coming reconstruction period—when the railways' esteemed rivals will be back at the old stand with new tools and, possibly, in much larger numbers.

Victory Rides America's Railways

Outstanding leaders concerned with American wartime transportation are agreed as to the magnificent job the railways have done. Records indicative of operating efficiency are being exceeded almost daily and the tremendous, unprecedented traffic is being moved currently and without congestion.

The leaders are also in agreement that this is no time for complacency. The railways, government organizations, the Army, the Navy and the other shippers and receivers must all co-operate even further, for the road ahead offers no cheering prospects. Any letdown will be fatal and, if the job is done at all, it will be done only by increased effort and by attaining even greater goals of operating efficiency.

Joseph B. Eastman

Director, Office of Defense Transportation

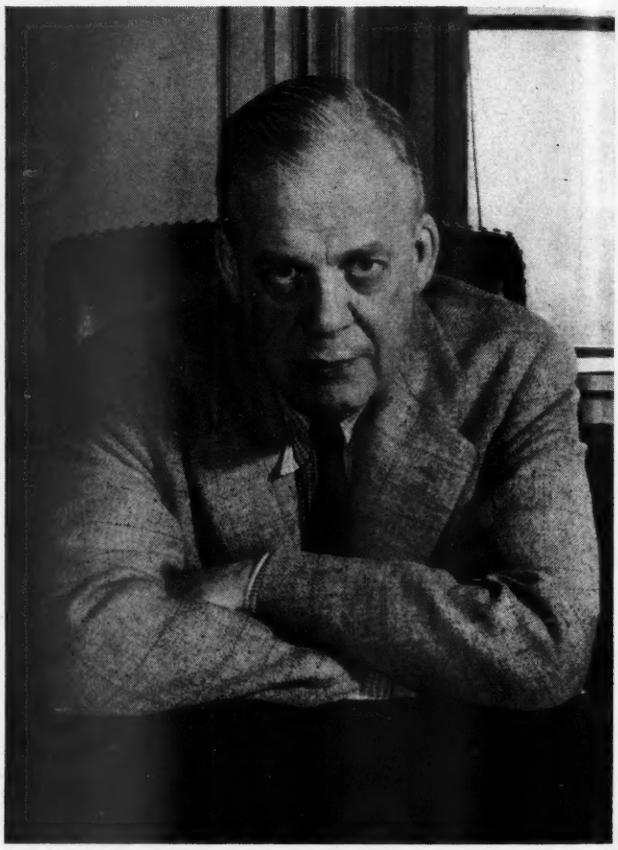
All of us engaged in transportation work have had a difficult but fruitful year since I last, through the medium of the annual Freight Progress Issue of *Railway Age,* addressed a message on the situation to the shipping and transportation community.

At that time I said that there would not be enough transportation equipment to go around and that shippers and receivers would have to extend their fullest co-operation to the carriers, if the essential job was to be done. The users of transportation have evidenced such co-operation in generous measure, and the carriers have exerted themselves strenuously to make their inadequate resources of plant and equipment yield a larger product of transportation service.

It would be less than just not to say: "Well done," both to the men who provide, and to those who purchase transportation, in acknowledgment of their effective devotion to their work during the past year. Yet, I am sure that the warm glow of satisfaction at past accomplishments is not the emotion which needs to dominate our present and future attitude in the face of the task which still confronts us.

Despite all that has been done by the carriers and their patrons to maximize the production of existing transportation facilities—it has not been possible, entirely, to avoid congestion and the resulting embargoes. Our transportation task is still growing, but the physical means with which to perform it are not expanding. The widening "spread" between the amount and type of demand for transportation and the physical plant which supplies it must be restrained by more intensive application of human energy and intelligence—which, if forced to yield their utmost, can both contract the demand for transportation and enlarge its supply.

While our users and suppliers of transportation have done well, discussions at recent meetings of the regional advisory boards do not indicate that they themselves are entirely satisfied that all segments and sections of this enormous undertaking are yet doing their *best.* Yet that *best* is what will be required of everyone



Harris & Ewing

Joseph B. Eastman

in the months ahead; and the fact must be candidly faced that possibly even the best will not be good enough, in relation to the magnitude of the job and the continued meager supply of physical materials with which to do it.

No railroad man or receiver or shipper of freight will have done his full duty merely by eliminating all waste and delay within his own jurisdiction—his encouragement of his laggard brethren is also needed. Possibly, even if "perfect shipping" should become an accomplished fact, rather than a praiseworthy goal, our transportation machine may not, even then, yield all the product that the nation needs. Such lack would not, however, be a charge upon the consciences of transportation people—who had done not only *their* best, but also the best that any persons whatever could have done. To accomplish this last must be our present aim.

John J. Pelley

President, Association of American Railroads

In 1923, five years after the first World War had ended, nobody in this country dreamed that the world would be embroiled in another gigantic struggle within the next 20 years. Neither did anyone dream that in such a short time our own nation would again be faced with the supreme test of war. Yet, 20 years ago, the American railroads began to plan and prepare for the day when once more they might be called upon to meet the demands of war. True, these plans and prepara-

tions were made primarily to handle commerce. But a railroad system which is ready to handle great tides of commercial traffic, and is ready to meet the emergency presented by storm or flood, is also ready to meet military emergencies.

The plans to meet transportation emergencies, whatever those emergencies might be, started with an important session of the Association of Railway Executives in the spring of 1923. Out of that meeting came an extensive modernization program—a program designed to improve the railroad plant in every way and to get more effective use out of that plant.

Since the inauguration of that program, the railroads have invested approximately 11 billion dollars in better cars, better locomotives, better facilities. Since then, too, the shippers and receivers of freight—the people who use the railroads—have organized to help maintain adequate and efficient railroad service in time of war as well as in peace.

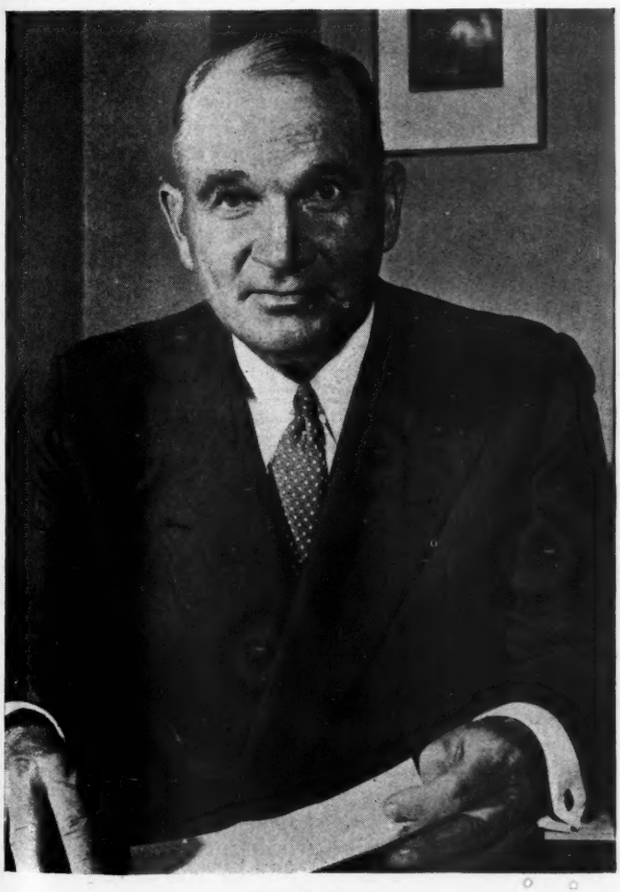
As a direct result of this program, the railroads effected what was practically a revolution in freight service, and abolished general car shortages, even during the periods of heaviest traffic. At the same time, they reduced substantially the actual cost of performing a unit of transportation.

Still more important, they kept ahead of transportation demands, and were prepared when war struck suddenly on December 7, 1941.

Indeed, if it had not been for the plant improvements and the organized co-operation of the shippers, including the government, the railroads would not now be able to handle by far the greatest traffic in history. They would not now be able to meet military requirements and at the same time take care of the nation's civilian needs. In short, they would not be able to do their full part in the war effort—and that would be disastrous.

Photo by U. S. A. Signal Corps

Major General Charles P. Gross, U. S. A.



J. J. Pelley

Freight progress, then, is important. The war has proved that, if proof be needed. It has proved, too, the necessity of continuing that progress, of constantly striving to improve transportation service—a job not only for the railroads, but also for those who ship by rail.

As was the case last time, this war will teach us all many things. It will show us even more ways in which we can better our plant and better our services. Meanwhile, we have a big job ahead—a job of winning this war and winning it in the shortest possible time. To accomplish that, the railroads must be given the opportunity to do their necessary and indispensable part. That means that those who have the responsibility of allocating materials must permit the railroads to acquire the equipment, locomotives, cars and maintenance materials without which they cannot perform their vital task.

The freight progress that has been made over the past 20 years will contribute immeasurably to victory, and the progress that will be made in the years to come will help build an even stronger America.

Major General Charles P. Gross

Chief of Transportation, Army Service Forces, United States Army

One year ago, in concluding a statement for the annual "Freight Progress" issue of *Railway Age,* I wrote: ". . . Until Victory is won, the needs of the Army will continue to grow, and more and more rail service will be required. This can be provided only if our vital rail-

way plant and facilities are continued in their present high state of efficiency. We of the Army look to railway men with every confidence in their ability to meet the test."

That the confidence of the men of the Army in the ability of railway men to meet the test was not misplaced is borne out by statistics on transportation in the first full year of the current war, and by a comparison of those statistics with those for the first twelve months of the First World War.

During the first year of the World War I, the American Railways handled 2,734,527 troops, including inductees; in the corresponding period of the present war, they handled 11,641,838 troops. During the month of November, 1942, the Army delivered more than one and one-half million troops to the railways for trips ranging from a few miles to 3,000 miles.

It is interesting to note that of the 11,641,838 troops moved by rail in the first twelve months of the present war, almost sixty per cent traveled on special trains. Twenty-one thousand special trains were provided by the railways, which included 197,288 passenger cars and 79,443 baggage and freight cars for the troops' impediments. In making up these special trains, more than 55,000 open top cars were used, reflecting the large number of trucks, tanks and heavy artillery included in the equipment of a modern military unit.

During the July, 1918-June, 1919, period, which included the peak months of the freight movement in World War I, the railways handled 11,224,427 short tons of Army freight. During the first twelve months of World War II, the figure was approximately 41,000,000 tons. The heaviest month in the last war saw the movement of 1,445,535 tons, whereas the largest monthly movement during the first year of this present war was 5,600,000 tons.

While noting how Army rail traffic has increased as compared with the last war, it is worth while to observe how the overall traffic of the railways in 1942 compares with that of 1917. Although operating with less equipment over fewer miles of track, the ton-miles of revenue freight increased 37 per cent, and the passenger-miles increased almost 25 per cent. This result has been accomplished by running longer trains, by moving them faster, by loading cars more heavily, and by reducing the time which cars are permitted to spend on sidings under load or empty.

In 1917, the rapid increase of overseas traffic and the abnormal conditions imposed by the war resulted in serious congestion at the principal Atlantic ports. As a result, cars containing export freight had to be held for long periods under load before they could be moved to the ocean terminals. At one time, as many as 200,000 such freight cars were immobilized at or in back of the Atlantic seaboard. This in itself was a tremendous waste of transportation facilities, and the resulting congestion slowed up the movement of all traffic. Today, the number of railway cars waiting to deliver export freight at United States Atlantic ports rarely exceed 15,000.

This healthy traffic situation has been accomplished by constant vigilance on the part of the railways and the various government agencies concerned, and by prompt action whenever the slightest threat of congestion has appeared. Because delay in the overseas movement of Army freight to our fighting forces is intolerable, the Army has insisted that the ports be kept liquid at all times, and has done everything possible to establish the co-operative machinery which today is achieving that result.

Official U. S. Navy Photo

Rear Admiral William B. Young, U. S. N.

While the foregoing comparisons are rather astonishing, they become almost astounding when consideration is given to the fact that the accomplishments of this war have been achieved with so little dislocation of commercial schedules.

The railways have more than justified the confidence reposed in them by Army men, and have given us every reason to believe that no matter how difficult the job becomes—and it will become more difficult before the Victory is won—they will accomplish it with growing distinction.

Rear Admiral William Brent Young, SC, USN

Chief of the Bureau of Supplies and Accounts and Paymaster General of the Navy

Since the declaration of war, the United States Navy has become the second largest user of the nation's railroad facilities, and the performance of the American railroads in the transportation of naval personnel and supplies is a primary factor in all the operations of our Navy.

There could be no Navy without land transportation to move the tremendous quantities of materials required to build, equip and supply our ships. Every section of our country contributes to the building, manning and maintenance of our fighting forces afloat, so virtually every mile of railroad is a vital part of the transportation system on which the Navy depends.

The efficiency and dispatch of our railroads in moving millions of tons of freight for the Navy, and in transporting hundreds of thousands of sailors from their

G. H. Shafer

homes to training stations and from stations to ports, have established records unparalleled in the history of transportation. The records that have been achieved by the railroads, with less rolling stock and fewer locomotives than were available during the First World War, must be recognized as among the greatest American accomplishments in the prosecution of the war.

As Chief of the Bureau of Supplies and Accounts, I am in a position to appreciate fully the prodigious achievements of our railroads, for this bureau of the Navy Department authorizes and has cognizance of the transportation of Navy property. This division functions as the freight traffic department of the Navy, handling the routing and distribution of navy shipments. It also acts as the Navy's official liaison with other transportation agencies concerned with material movement, including the Office of Defense Transportation, the Interstate Commerce Commission, the Association of American Railroads, the Traffic Control Committee, and other transport activities in Government and industry.

The Bureau of Supplies and Accounts routes more than 50,000 freight cars a month, while additional thousands of cars carry immense quantities of materials handled under private bills of lading for plants engaged in filling Navy contracts. The Navy uses heavier armament than any other branch of the armed service, and unusually heavy and unwieldy shipments for the Navy are fairly common. Added to the handling difficulties of such shipments is the fact that the transportation schedule must be geared to the ship-building schedule so that the materials required may arrive at the shipyards when they are needed and in the order in which they are needed. Supplies for our vessels must arrive at the docks on schedule to meet sailing dates. The American railroads have not failed to maintain such vital shipping schedules.

Not only are the American railroads performing heroic tasks in serving the United States Navy, but they also are largely instrumental in keeping supplies moving for our Allies' navies by delivering materials and supplies to foreign warships when they come into our ports, and by hauling large quantities of materials supplied our allies by this country under the Lend-Lease act.

There is every possibility that the Navy's rail transportation needs will continue to increase, but our railroads' performance and co-operation to date give full confidence that they will continue to render every service required to hasten the day of our victory.

G. H. Shafer

President, National Association of Shippers Advisory Boards

For 18 months, the railways have exhibited remarkable efficiency in the handling of wartime transportation. They are deserving of the highest compliments. I am more than proud of the contribution that the shippers and receivers have made, through the regional advisory boards, in the continuance of such an outstanding showing.

On the basis of freight-car utilization in 1941, when excellent results were obtained, we would have experienced a car shortage of at least 175,000 cars per week during the peak loading of 1942 if it had not been for the determination on the part of the railways and the vast number of shippers and receivers of freight throughout the country to see to it that we would not want for transportation during that critical year. The pledge of the shippers to see to it that no car shortage resulted found expression through the voluntary car efficiency program of the thirteen regional advisory boards, which was fully supported by the National Industrial Traffic League, chambers of commerce, and many other shipper organizations. General Order No. 18 issued by the Office of Defense Transportation, requiring better utilization of equipment by increasing the average load, did not become effective until November 1, 1942, well after the peak was passed and must, therefore, give way to the voluntary, self-policing action of the shippers and receivers, so far as credit for the 1942 performance is concerned. This order, however, is now proving its worth in car conservation.

Looking to the future, however, I can see no reason whatever for complacency and every reason for the shippers, the railways, and the two major governmental agencies charged with handling transportation matters to redouble their efforts. Just how much more slack remains to be taken up is debatable. Certainly car-handling practices on the part of the shippers have been brought to a state of efficiency which they never attained before, but we dare not relax in our efforts.

At the sixth annual meeting of the National Association of Shippers Advisory Boards in Chicago last October, a strong resolution was passed requiring the national officers to work diligently toward securing approval for more rolling stock for the railways. This has been done in co-operation with the railways and other organizations. Our efforts, and those of the railways in this respect, have not met with the hoped-for results. These efforts will be continued, and it is my belief that the long-range solution of one of our major problems lies in their successful conclusion. Certainly

we cannot expect to place an additional load upon the carriers year after year and deny them rolling stock, but little, if any, in excess of retirements.

In the meantime, however, it is up to every shipper and receiver to take off his coat and plunge into the immediate job that is facing the railways and themseives—that of getting the Nation's freight moved without car shortages in 1943. This task is not an easy one; our efforts must be redoubled. Knowing the temper of the shippers as I do, at a meeting just held in Washington I felt free to pledge *an immediate and more intensive* campaign on the part of the 13 advisory boards to "save another car-day." In a true spirit of co-operation, the carriers pledged to put forth immediately every effort to reduce the average turn-around time of cars.

It is my belief that the railways, with the continued assistance of the shippers, will, in some manner, be able to supply the country with the necessary transportation throughout this critical war period.

R. R. Luddecke

President, National Industrial Traffic League

It is not well to take time off for self-esteem in the middle of a big job. But sizing up periodically how the work is going is useful—because only in that way can unproductive methods be detected and eliminated, and pursuit of effective measures be intensified.

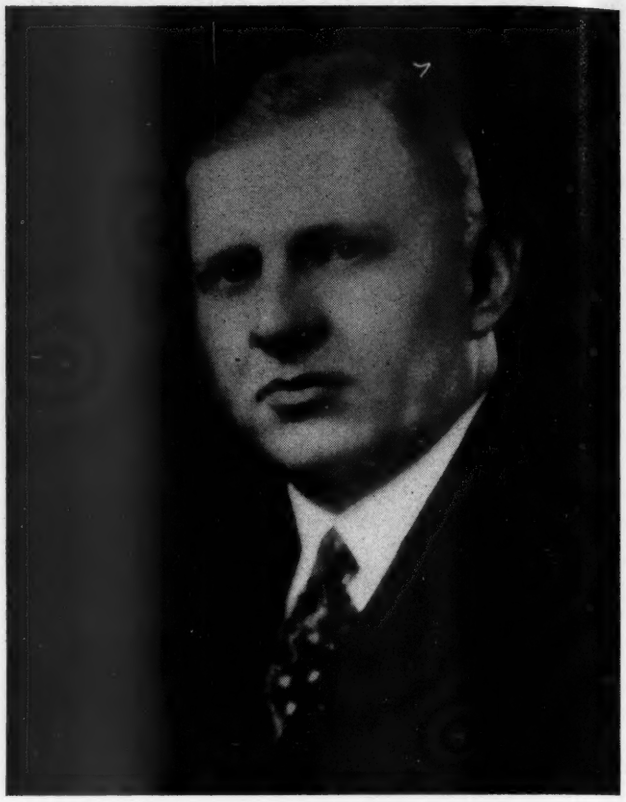
Traffic and railroad men are sufficiently impressed with the magnitude of the job that is still ahead of them to not be unduly complacent at what they have so far accomplished. Yet what has already been done is the best test of whether effective methods are being employed. So the following brief look at the record should be helpful:

In 1939 the revenue ton-mileage carried by the railroads was 333 billion; in 1942 it was 638 billion—an increase of 90 per cent. Freight cars on railway lines (i. e., including cars of private as well as of railroad ownership) averaged 1,875,000 in the first quarter of 1939 and 1,920,000 in the first quarter of 1942, an increase of less than 4 per cent. When 90 per cent more transportation can be produced with an increase of less than 4 per cent in the number of vehicles used to provide the service, it is evident that the methods being employed to secure great utilization are extraordinarily effective.

This conclusion is fortified by the figures which show that the railroads began the year 1942 with almost 1,500 fewer freight locomotives than they had at the beginning of 1939.

The methods which have produced such remarkable results are too numerous and varied to permit enumeration—besides they are too well known to traffic and transportation men to require repetition. But there is a common descriptive term which fits almost all these measures, namely, *voluntary co-operation*. The shippers and receivers of freight, both individually and through their organizations, are striving by loading cars heavily and quickly to stretch a limited car supply over an enormous quantity of traffic. The carriers, for their part, are adopting similar expedients to extract the utmost performance from their car and locomotive equipment.

The Car Service division of the Association of American Railroads has developed a technique of car distribution which has proved most effective in preventing shortages from developing, wherever there are suitable



R. R. Luddecke

idle cars anywhere on the continent to forestall such shortages.

The governmental agencies dealing with transportation—the Interstate Commerce Commission and the Office of Defense Transportation—have brought the wisdom of experience to their task, so that difficult situations are dealt with, so far as practicable, by consultation with the parties concerned—and rigid orders are usually avoided unless circumstances indicate their necessity. Such avoidance is highly desirable, because rigid rulings can never conform to the circumstances of all situations. It is well said that "what is one man's meat is another man's poison"; and a hard-and-fast regulation which may cure a bad situation at A may create a similar ailment or make one worse at B—the circumstances of which were unknown to the promulgators of the mandatory order.

Medication, to be most effective, needs to vary with the circumstances of each patient. Applied to transportation this means that practically every traffic and transportation man has to be, to some extent, his own O. D. T. and I. C. C.—adopting measures in the handling of his business which may be contrary to his immediate selfish advantage, but which are needed in the national interest. Only if the local "transportation doctors" fail to do this nationally-needed job, adjusted to the circumstances of their own bailiwicks, does it become necessary or justifiable for uniform medication to be prescribed in the form of mandatory orders. An army which has confidence in the skill and reliability of its medical officers does not issue blanket orders that every soldier responding to sick call shall get a dose of salts and be painted with iodine.

The figures provide eloquent evidence that the present procedure for dealing with transportation is the most effective one likely to be evolved—especially when

(*Continued on page 1000*)

What the American Railways Need

Representative executives indicate the urgent necessity of rolling stock and materials if excellent performance is to be continued

WHAT do the railways need to continue their vital contribution to the war effort—the supplying of wartime transportation? What will be the post-war status and needs of the railways in freight service?

Key railway chief executives, representing the various parts of the country—Presidents M. W. Clement, of the Pennsylvania; Ralph Budd, of the Burlington; A. T. Mercier, of the Southern Pacific; E. E. Norris, of the Southern; E. J. Engel, of the Santa Fe; and Trustee H. S. Palmer of the New Haven—express their views regarding immediate needs and post-war prospects in articles that follow.

M. W. Clement

President, Pennsylvania

M. W. Clement

The railroad war story is an open book, and those who wish to read may do so. It has been consistently so for four years. It was four years ago that the railroads, at the request of the Government, made recommendations as to how best to approach the railroad situation in the event of war.

Since the war broke out, in the fall of 1939, the upsurge in railroad business has been practically continuous. From that day on, from a none-too-good situation as to freight cars, both as to numbers and as to condition, the railroads have made continuous improvement. From that day on until the time when they were limited in materials for new cars, the railroads have continuously added to their freight equipment, by repairs and renewals—calculating with mathematical accuracy forecasts of future conditions and needs and living up to those forecasts—except as restricted by materials.

As the upsurge in transportation business continued, the motive power situation came more to the foreground; and, calculated with relatively the same accuracy as the necessity for cars, the railroads arranged for the building or purchasing of engines according to their determination as to necessities. But priorities, and troubles encountered in getting priorities, put a drag on the power production; and, while the necessary engines have been planned, they are not coming out on time. So that during the winter of 1942-43 the railroads, particularly during cold spells, were short of power. It would be particularly unfortunate if, due to conditions beyond railroad control, a power shortage should develop in the critical winter of 1943-44.

Because of governmental restrictions on steel, the railroads can build no new passenger cars. Facing record-breaking and increasingly heavy demands for passenger service, the railroads, lacking enough equipment to do the troop job, the essential civilian job, and the job of those who left automobiles and airplanes and took to the rails, have made every effort to meet the demands made upon them. Passenger equipment has been remodeled and its seating capacity increased. Passenger car operation has been intensively studied, adjusted, and re-arranged to secure the maximum use of every available piece of equipment. The railroads have been and are doing the best they can with what they have.

We can never give too much credit to shipper co-operation in the successful handling of the freight movement. Never in my railroad experience have we had the co-operation that we have now; and never have we needed it so much, except perhaps in the last war. This shipper co-operation has been brought about to a very great extent through the efforts of the traffic managers of industry who have been working wholeheartedly with the railroads through this war, not only in matters of movement but also in matters relating to rates.

As with the shippers, so with the traveling public. Their good-nature, cheerfulness, and patience in the face of unavoidable delays, inconveniences, and discomforts have been most praiseworthy and helpful. We have kept the public informed as to why these things must be, and those who travel with us are to be highly commended for their consideration and understanding.

But do not forget the co-operation that has existed within the railroad industry itself: regardless of revenue, regardless of expense, these railroads have diverted their business, one to the other, to meet the necessities of the moment, notably to handle the big oil load placed upon them by the discontinuance of coastwise transport.

As I look forward to the future, and see the constantly increasing war load, we will probably need some more

freight cars. We will need more engines. There is an increasing necessity for additional road and yard facilities; and that, of course, brings us to the fact that the ever-increasing demand upon the railroads to provide these temporary war facilities and to provide the funds to finance them may impose upon the rail carriers a severe financial burden in the face of a taxation system that does not give to the railroads the same kind of protection as regards depreciation that other industry enjoys. The ever-increasing tax load; the decreased rates ordered by the Commission—all these may bring the railroads (and that would be unfortunate) to a point where they just do not have the funds to provide the additional facilities that may yet be necessary to carry on the war effort.

Railroads enjoy the co-operation of the shipping public; they enjoy the co-operation and patience of the traveling public; they enjoy the co-operation of the Army and the Navy; they enjoy the co-operation of their employees, and are especially proud of the great contribution which these railroad men and women are making to the war effort.

What the railroads need is the co-operation of government agencies that control the physical and financial wherewithal to enable them to continue to do the job they have demonstrated their ability to do outstandingly well.

Ralph Budd

President, Burlington Lines; Former Member, Advisory Commission, Council of National Defense

What the railroads will require in order to maintain their present service can be summarized briefly by saying that they need enough manpower and materials to keep them in good physical condition, and, since it is now being fully utilized, there should be expansion of the plant as the transportation duty increases.

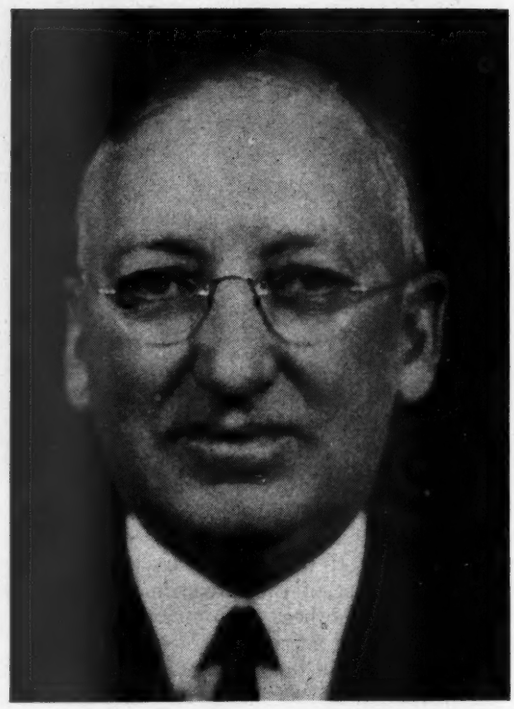
The tremendous capacity of the railroads has been conclusively proved, and also what can be accomplished by co-operation of those who use, operate, and regulate them. In a long period of lean earnings the railroads had provided and improved a standby plant which was available for vital war traffic and without which it could not have been handled successfully.

Unstinted credit should be given to the shippers, both civilian and government. The thirteen Regional Shippers Advisory Boards were active long before the war, and their efforts have been most effective. Without shipper co-operation in prompt loading and unloading, and in heavy loading of cars, the transportation performance would not have been nearly so favorable.

There are certain things which the railroads and shippers could not do. The Interstate Commerce Commission's Orders Nos. 68, 70, and 71 are examples of such outside assistance. In addition to commission orders, the service agents under Commissioner Monroe Johnson have lent most effective aid to the railroads in handling every sort of transportation difficulty which has arisen.

The Office of Defense Transportation put out two helpful orders which have been especially publicized. Order No. 1 required heavier loading of L. C. L. cars, and Order No. 18 required capacity loading of carload freight. In our experience Order No. 18 was the more productive of the two, because Order No. 1 resulted in some additional labor, freight house congestion, and loss and damage to freight.

There is another thing which the railroads cannot do, and that is the making of policies concerning manpower and material. The Office of Defense Transportation has been understanding and helpful in these matters. The extremely severe use of the railway plant has caused steel rail to become perhaps the most critical of all our material problems, and if the war is to be long continued it will be imperative that more new rail be laid in tracks in order to carry on safely with the constantly growing burden of traffic. Additional tracks and appurtenances are necessary, especially in and around terminals.



Ralph Budd

Locomotive shortage is imminent also because of the heavy duty imposed upon the railways, and the same is true of car supply, but without more rail and locomotives comparatively small gain would result from adding a large number of cars.

In commenting upon postwar conditions and problems of the railways, certain facts must be considered and certain assumptions be made. The railways have been less fortunate during the war period than some other industries, which have had their techniques advanced largely by government aid. This is especially true of aviation. The railways have had to forego the benefits from new and improved materials which they had been using but for which there have been great demands for strictly military purposes. They will resume the use of materials which they cannot get now and thus, among other things, will improve the ratio of the weight of equipment to paying load. The least that should be done, when during the emergency locomotives and cars are purchased of types which are not fully up to date, is to allow quick amortization of such units so that in the postwar period the railways may take prompt and full advantage of new techniques.

In overcoming the lag in their development caused by the war, the additions the railways will make to their plant after the war necessarily will depend upon the volume of traffic. They are certain to need much new

track rail and new motive power and other equipment. After the so-called catch-up period, the existing and prospective volume of traffic will be controlling. However, we should now be finding out as far as practicable what will be best to use in the postwar period. For example, it might be possible to improve upon the standard rail section. New sections should be tried out immediately in order to determine the best to use and get the benefit of it during the war period, as well as when large quantities of rail will be required after peace comes. Only by actual service tests can rail designs be proved.

What the attitude of government is going to be toward private business, whether encouraging or discouraging, is of vital importance. Government policies obviously will be of special importance, both directly and indirectly, in determining what the railroads will do and can do. Anything which will deter private enterprise should be avoided; everything that will encourage it should be done. The railways will have no lack of projects if the so-called climate is favorable to railway expansion and development.

At least two postwar problems are obvious. One is taxation. If the method of taxation is such as to encourage venture capital, there will be no dearth of new enterprise. Another is what the government will do about its large investment in industrial plants, that is, whether it will encourage private enterprise to operate them where practicable, or whether the government itself will operate them competitively with private business.

E. J. Engel

President, Atchison, Topeka & Santa Fe

What the railways need to continue their record service is more of everything—more locomotives, more cars, more men, and more material. Furthermore, it is not just a question of continuing the present record of service but rather of adding substantially to the present record.

With fewer cars and fewer locomotives, but both of greater capacity and with several hundred thousand fewer employees, the railroads are handling more than twice as much traffic as in the last war. The lessons learned then have been invaluable now. The Army, the Navy, all other military branches, the Office of Defense Transportation, and shippers generally have co-operated closely and intelligently to accomplish this. Careful scheduling, maximum loading, prompt loading and unloading, and the sedulous avoidance of congestion have been controlling factors.

It is believed that with some added trackage here and there, the tracks are able to care for more trains, but with practically all cars and locomotives now about fully occupied, increased traffic will need more cars and locomotives to move it, especially locomotives, for even now both loads and empties have to wait at times for power and men to move them. More equipment calls for more men to operate and maintain it and the roadway on which it runs. Our government has just arranged with the Mexican government for track and farm labor which it is hoped will be helpful, but skilled operatives will have to be developed or obtained outside to replace the constant loss to the armed forces and to industry, and to provide the men to operate the added equipment as it is forthcoming. The essential materials for repairs to the railroad plant are a vital necessity, for the wear and tear of intensive use must be made good. Understanding and sympathetic attitude of the traveling public, when the railroads have been unable to furnish all the accustomed services, has been a source of comfort to responsible railroad men, who no longer have the usual surplus reserve to take up the overload. With the continued co-operation of shippers and the additions to plant and manpower, which we have faith to believe will be provided, I am optimistic that the swelling tide of traffic will not overwhelm the railroads, but will be handled as required and new records established.

E. J. Engel

Ernest E. Norris

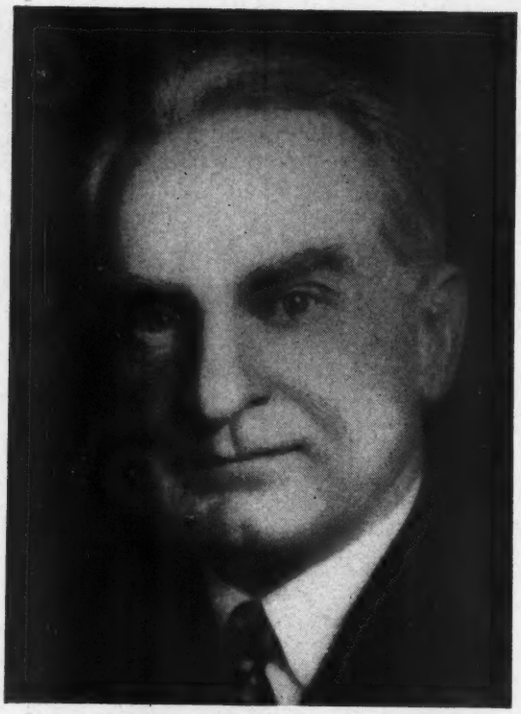
President, Southern

I am sure that my colleagues who are contributing to this symposium on the needs of the American railroads to continue their record service will deal with the physical requirements of the railroads most effectively and convincingly. They will undoubtedly describe these pressing needs in detail; the need for rail, locomotives, cars, track appliances, tools, repair parts and all the other items necessary "to continue their record service." I join fervently in their certain expressions of hope that these needs will be satisfied in such a way and in such quantity as to insure a continuation of the "super-service" that has now become every-day railroad practice.

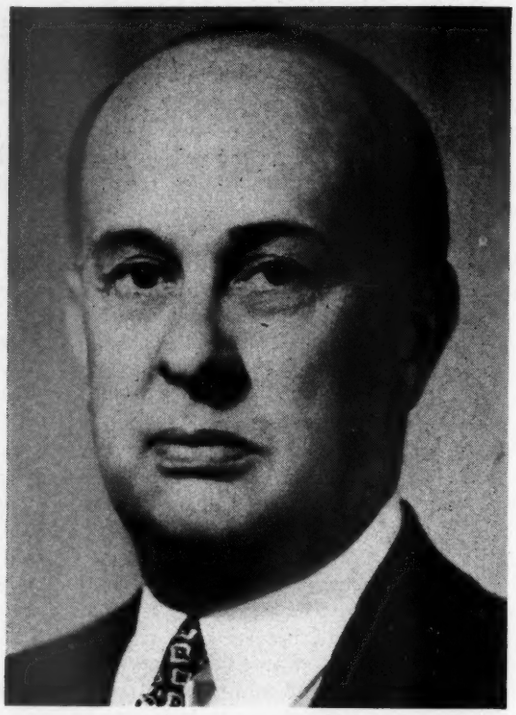
But, assuming that these hopes are realized in fair measure; assuming that the industry as a whole is given all the equipment and materials and supplies that it can reasonably expect in time of total war, the railroads might still find it difficult "to continue their record service"—

Without the whole-hearted co-operation of those who use railroad services;

Without the sympathetic understanding of those who



Ernest E. Norris



A. T. Mercier

devise and administer the regulations under which the railroads must live and operate; and,

Without the active good-will of the public which, in the final analysis, will determine the whole future of our American railroads.

These are all intangible things. These are all attitudes or the result of attitudes. We can't tabulate them. We have no yardsticks with which to measure them accurately. Yet we must have them, just as surely as we must have new rail and a certain number of new locomotives and cars, to do the job ahead successfully.

We need, without question, a continuation of the teamwork and tolerance that so dramatically feature our present relations with those who use our freight and passenger services. We must do everything in our power to encourage the continued co-operation of shippers and receivers of freight. We must find ways and means to explain present-day inconveniences and discomforts and delays in passenger travel; to express our sincere appreciation for the priceless tolerance and understanding of those who must travel on our crowded trains.

We need understanding—friendly understanding—of railroad affairs by the members of Congress and of the various state legislatures, who will inevitably be called upon to defeat crack-pot proposals affecting the railroads and (we can hope) to enact constructive legislation which will help to insure the future of our industry. By the same token, we have need for continuing and intensifying our efforts to inform these key representatives of the public.

We need the good-will and the respect of all those who are charged with the responsibility of regulating our industry according to the law of the land. We will have need for sound decisions by the Interstate Commerce Commission and all the state regulatory bodies. We will have need for the continued and helpful co-operation of the Office of Defense Transportation, and we must so conduct our business and our relations with these bodies as to merit the kind of regulation that will enable the railroads "to continue their record service."

Finally, we need greater efforts on the part of all railroads to cultivate public good-will. We need a continuation, indeed an expansion, of the effective public relations work that has been carried on by the Association of American Railroads, by the regional organizations, and by many of the individual railroads. For the resulting admiration and respect will be our inspiration, not only "to continue record service" but to strive for new heights of usefulness in the trying days to come.

A. T. Mercier

President, Southern Pacific

The most pressing needs of the railways, as faced by the Southern Pacific, are for men, motive power, and continued co-operation of all concerned with production and use of railroad service. The current shortage of men on our system is around 10,000. More than 11,000 of our former employees are in the armed services. Our shortage of track workers is particularly acute. Supply of qualified track workers is not available in this country. Best means of meeting this situation is by importation of Mexicans, their effectiveness in trackwork having long been proved by their fellow countrymen on our lines. Also, while we have not asked for any blanket exemption of any classification of employees in the draft, we feel the urgent need of well-experienced railroad men must be taken into consideration in the individual cases coming before selective service boards.

We have employed 3,000 additional women, who are performing work formerly done exclusively by men. From white collar workers—businessmen, students, and others—we are receiving an average of 4,460 man-days of work each week-end. These citizens are making a patriotic and practical contribution to the war effort. We are grateful to them and we are counting on their

continued help. But even if our best expectations are realized from these sources, man-power shortage will continue as a basic problem.

Locomotives comprise the most important item, in our operations, in the list of equipment for which materials are needed. We also need rail, ties, bridge and other materials; and, because a large proportion of our lines are single track, we need materials for construction of Central Traffic Control apparatus. However, we have drastically scaled down our requests for items other than locomotives because the need for locomotives remains the most urgent in spite of the very large purchases of engines made before and since the national defense program got under way.

Teamwork between the railroad and its users, among the railroads, and within the railroad itself has been and will continue to be indispensable in the war emergency. Commercial shippers have co-operated in holding requests for cars to a minimum, in loading cars heavily, in releasing cars quickly, even when this involves work on Sundays or holidays, and helping keep cars clean. Our working relationships with the Army and Navy have been such as to make for effective effort for a common purpose. We are fortunate to have had helpful, understanding co-operation from other government agencies of first importance, notably the Office of Defense Transportation and the Bureau of Service of the I. C. C.

The traveling public has been tolerant of delays and inconveniences to a remarkable extent. Now and in the months to come we hope travelers will be equally co-operative in holding train trips to those that are strictly essential.

The general public has been understanding and co-operative, due largely to the public service rendered by newspapers, periodicals and radio in presenting the facts as to transportation fairly and adequately. Teamwork among the railroads has been close and effective. Competitive interests have been submerged as locomotives and other equipment have been exchanged and loads shifted from one road to another to alleviate tight situations or to meet other emergencies. Within the individual railroad's organization the teamwork has been of a high order and it has included many individual instances of extraordinary performance by officers, supervisors and employees.

H. S. Palmer

Trustee and President, New York, New Haven & Hartford

The transportation and expeditious movement of hundreds of thousands of men and millions of tons of vital materials and supplies constitute a grave responsibility for those of us who are concerned with transportation. Night and day, the railroads have been on the job, meeting the increasingly difficult requirements for freight and passenger service in order to "Keep 'Em Rolling." The co-operation of the shippers and traveling public has contributed largely to the record-breaking performance.

This problem for the New England roads has been, in certain respects, more difficult than on other Class I roads because the territory, honey-combed with great aircraft, machine tool and munitions industries, constitutes one of the most vital production centers of the nation's war program. Here are located also many cantonments, air bases, ship yards and submarine bases. As of December 31, 1942, over 10 per cent of the country's war contracts had been placed in New England, which became the only area east of the Mississippi with a higher proportion of war contracts than of peacetime production. In addition, the density of population and the servicing of the key cities of New York and Boston has required intensified passenger operations. Especially noteworthy among the many achievements has been the rail movement of gasoline and oils which previously came into New England almost entirely by water.

H. S. Palmer

The New Haven has spent many millions of dollars since 1936, adding to and replacing equipment and facilities. An increased demand for transportation during the fall of 1943 and the spring of 1944 is practically assured, and for that reason, an order was placed last year for additional road and switching locomotives, and every effort is being made to obtain delivery at the earliest possible date so that we may continue the prompt handling of all business which may be offered.

A continuation of our present performance is, to a large extent, also dependent on the manpower situation. The large and constantly increasing number of railroad employees in military service and the swelling volume of traffic have combined to present a labor situation of formidable proportions and necessitated the employment of women to a larger extent than heretofore. A program has been inaugurated for re-employing retired employees and the retention of those anticipating retirement. Efforts are being made to reduce absenteeism and negotiations are under way to bring about the fullest possible utilization of the training and skills of present hard-worked employees. We have every confidence that we shall make the grade.

"The great end of government is to give every man his own."—Dr. Samuel Johnson.

"Care would be had, that (as it fareth in ill urgings) the good be not taken away with the bad; which commonly is done when the people is the reformer." —Bacon.

Too Little, But Not Yet Too Late

The outstanding railway performance of 1942-43 is shadowed by what the future may bring forth

ON a bitterly cold day in February, the superintendent's track inspection car passed through Council Grove, Kan., a relatively unimportant railway terminal near the exact geographical center of the United States. Within the confines of that small terminal, four trains were met and three were passed. There were troop trains and trains loaded with war production workers; there were cars of coal and cars of wheat and cars of perishables. There were also cars of tanks and cars of guns and all the other grim paraphernalia of war. A later check disclosed that all of these trains continued on their way within a surprisingly short time.

This scene, multiplied many times over every day in thousands of such small terminals, and magnified in the larger railway yards, indicates how the tremendous job of railway wartime transportation is being handled. Elsewhere in this issue, statistics as to what was done in this remarkable year are given, but behind these figures is the stirring "down-to-the-ties" struggle, participated in by officers and men alike that has made this near-miracle possible.

Every operating record, except that for freight train speed, was broken over and over again. Net ton-miles have ascended to astronomical figures; yards are handling thousands of cars over what were previously considered their maximum daily capacities; and stretches of single-track are handling numbers of trains and tonnages that would have seemed incredible only a few years ago. The railways have demonstrated their ability to surmount crisis after crisis and to produce unsuspected latent capacity, with almost no increase in rolling stock or fixed plant.

A Remarkable Performance

In reviewing freight progress since the issuance of the 1942 Freight Progress Annual, one finds an epic of tremendous achievement against odds, and ample testimony that the railways are infinitely superior as producers of mass transportation to any other agency.

Despite changes in commodities handled and large increases in the tonnages and in the hauling distance; despite violent and unpredictable changes in traffic routes and traffic channels, the railways proved their ability to "take it." They were called upon and succeeded, not only in bearing their own burden, but in bolstering up every other agency of transportation, as such agencies were forced to give way for one cause or another.

In 1942 the railways handled unheard-of quantities of iron ore and oil. They took over the movement of coal to New England and the transcontinental movement of general commodities, when boats were unable to continue to handle the freight. They met every demand of our armed forces for the movement of materials of war. Meanwhile, they continued to perform their major role in keeping the Nation fed by hauling large quantities of perishables and moving grain and other agricultural products. All of this makes an unusually interesting and quite unique saga of transportation.

Handling New England's Coal

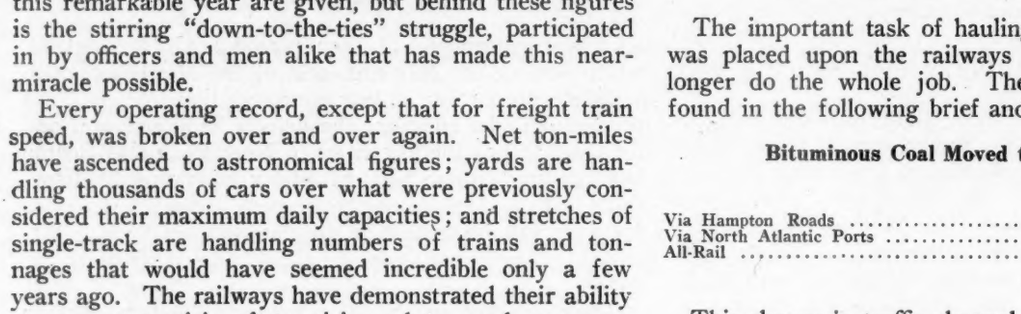
The important task of hauling coal to New England was placed upon the railways when colliers could no longer do the whole job. The crux of this story is found in the following brief and simple figures:

Bituminous Coal Moved to New England

	1942 Tons	*1941 Tons*
Via Hampton Roads	8,227,406	12,960,451
Via North Atlantic Ports	3,567,510	468,047
All-Rail	11,406,835	7,035,985
	23,201,751	20,464,483

This change in traffic channels will be even more pronounced this year, when, it is estimated, 4,500,000 tons —an increase of more than 800 per cent over 1941— will be handled via North Atlantic ports, and 14,000,000 tons will be handled all-rail, or about 100 per cent more than in 1941. This will be necessary to meet the estimated bituminous coal requirements for New England of 27,000,000 tons for 1943. As of the latest date for which information is available, the coal shipments to New England, other than via Hampton Roads, were running to nearly 450,000 tons, or well over 8,100 carloads, weekly.

A great deal of ingenuity and hard work were necessary to accomplish this. Routes had to be worked out



Tons Per Car and Cars Per Train Have Reached Unprecedented Heights

to relieve already overburdened standard routes. All southern West Virginia coal once moved to New England via the Hampton Roads ports. Force of circumstances, which reduced these ports to handling only about 25 per cent of their capacity, caused a violent upheaval in the normal routing of this coal. On the Norfolk & Western this has meant the diversion of much traffic via the Hagerstown gateway. Coal is now handled over the Shenandoah district from Roanoke, Va., to Hagerstown, Md. In place of the "coal boulevard"—the highly developed, double track main line of the N. & W.—the trains are handled over a 239-mile single-track line having long 1.5 per cent grades and heavy curvature, requiring about three times as much locomotive tractive power to move a given volume of coal.

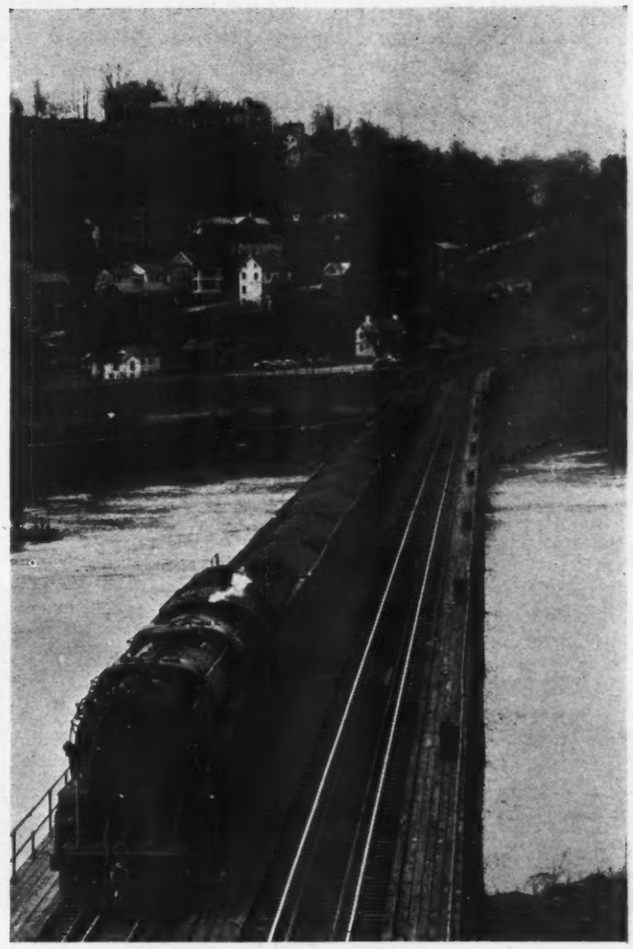
Shifts in Tidewater Coal

The Virginian uses a variety of routes. Some of its coal goes to Roanoke for movement via the N. & W. and the Hagerstown gateway; some moves to Alta Vista, Va., thence via the Southern through Potomac Yards. Still other coal is moved to Norfolk, floated across the Roads to Cape Charles on car barges, and handled north over the Pennsylvania's Delmarva division.

The all-rail coal from mines along the Chesapeake & Ohio is divided geographically as to ultimate gateways. Coal from western West Virginia moves north to Marion, Ohio, and thence east via the Erie to the Maybrook gateway. Some of it also moves north to Columbus, Ohio, and then eastward via the New York Central to New England. The coal from the eastern mines now moves via Charlottesville and Potomac Yard. This busy terminal is relieved of the humping of the largely increased coal business by reason of the fact that it is all moved in solid trains and moved around the hump without classification.

The Baltimore & Ohio and the Western Maryland continue to handle the coal mined along their lines much as usual. However, the Western Maryland is also participating heavily in the emergency all-rail movement in unusual ways. It receives an average of 2,700 cars per month from the C. & O. at Durbin, W. Va., from which point it is handled for 26 miles to Cheat Junction over a lightly built line that was not intended for such traffic. From Cheat Junction eastward the coal goes over the regular route used by coal from W. M. mines. The Western Maryland has also been assisting neighboring lines to by-pass congested terminals with return movements of empties, under Car Service Rule No. 5. For example, C. & O. empties, which the Pennsylvania would ordinarily return to that road at Potomac Yard, are now routed Pennsylvania to Hagerstown; W. M. to Durbin, and thence C. & O. The B. & O. uses the W. M. facilities for by-passing the busy terminals of Philadelphia, Baltimore and Washington by routing empties over the Reading to Lurgan, Pa., thence W. M. for delivery back to the B. & O. at Cherry Run, W. Va.

Such unusual movements require constant supervision, particularly since the New York ports do not have the high-capacity, modern coal-handling facilities that characterize the Hampton Roads ports. Car service agents of the A.A.R., and representatives of the O.D.T. and the I.C.C., give this movement their constant attention to see that there is no clogging of any of the routes mentioned. Some of these representatives are also stationed in New England to supervise the unloading of cars and starting the empties on their return journey. This is highly important, as on shipments from West Virginia to northern New England the turn-around time is sufficiently long to impair the car supply unless everyone concerned acts promptly. One of the chief aids in maintaining such car supply has been the reduction in the number of no-bill cars which shippers are permitted to hold in the mine yards. Under conditions of easy car supply, this practice had grown out of hand, but such cars have now been reduced to the minimum.



New England Coal Now Moves All-Rail in Larger Quantities

Open Top Cars

The transportation demands complementary to the Nation's war program have run largely to open top cars. This has placed an increased strain on the available supply, which will continue by reason of the heavy increases of coal production, iron ore shipments, iron and steel output, finished war armament, military construction projects, movement of military impedimenta and longer road hauls of traffic.

The following tabulations are indicative of the job of the open top car, comparing 1942 accomplishments with the year of 1930:

Open Top Cars

	January 1, 1942	January 1, 1930	Decrease
Ownership	808,843	951,568	142,725
Bad Order	33,316	50,807	17,491
Serviceable	775,527	900,761	125,234

Revenue Carloads of Principal Commodities Requiring Open Top Cars

	Year 1942	Year 1930	Increase
Coal	8,361,393	7,927,035	434,358
Ore	3,011,784	1,661,659	1,350,125

	Year 1942	Year 1930	Increase
Coke	731,299	487,841	243,458
Miscellaneous	19,754,575	17,681,033	2,073,542
	31,859,051	27,757,568	4,101,483

Average Tons Per Carload

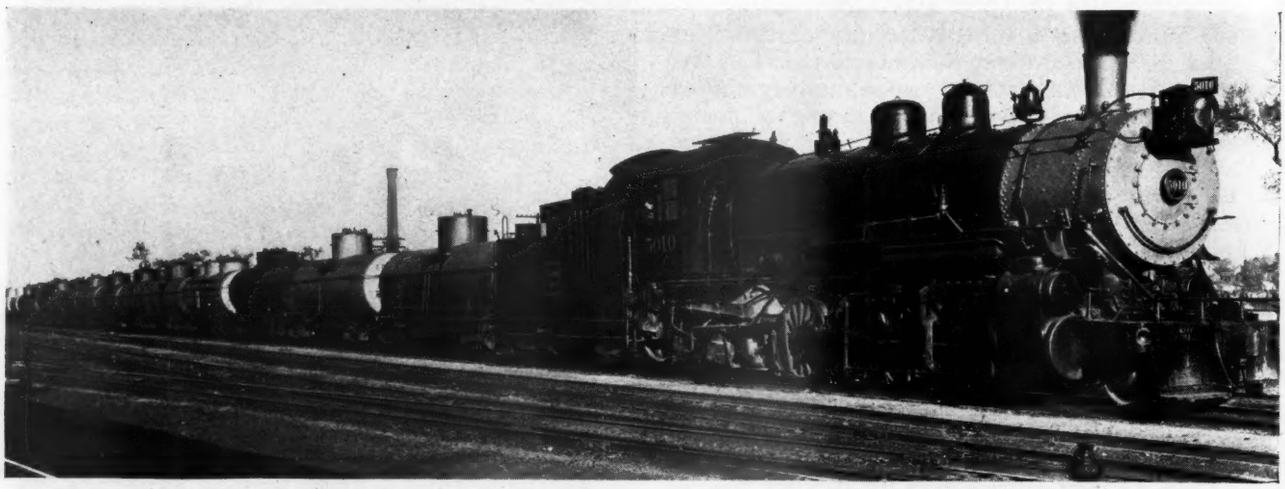
	Year 1942	Year 1930	Increase
Coal	55.9	53.5	2.4
Coke	36.2	33.4	2.8
Ore	59.8	55.4	4.4
All carload traffic	40.1	35.7	4.4

Average Haul Per Ton of All Traffic

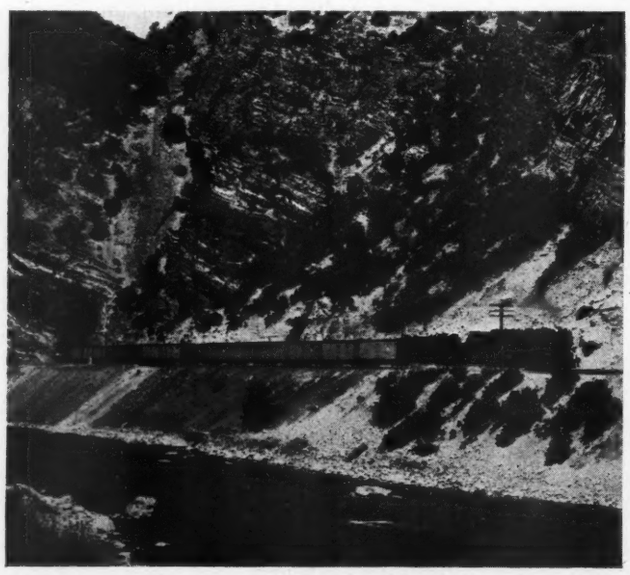
Year 1942	Year 1930	Increase
448.95 miles	316.21 miles	132.74

With 125,000 less serviceable open top cars in 1942, compared with 1930, there was an increase of more than 4,000,000 carloads of traffic handled as shown above, of which approximately 2,000,000 carloads involved coal, ore and coke. To illustrate some of the increased requirements for the open top car: there have been movements of coal from the head-of-the-lakes to the Pacific Coast ports of Seattle and Portland, a haul of more than 1,700 miles. The railroads are moving approximately 3,000 carloads per month of import bauxite ore from the New York district piers to Quebec, a distance of more than 700 miles. There are irregular movements of import ore from the New York and Hampton Roads piers to El Paso, Texas; there are much heavier demands for the movement of ore all-rail to the new blast furnaces at St. Louis, the Provo district of Utah, and to Fontana, Calif.; there is also an increased movement of coal all-rail to Canada. These represent a portion of the additional demands which have been placed upon the hopper type of open top car.

The longer haul of traffic is indicated in the statement; however, there has been and will continue to be a tremendous movement of iron and steel products, and finished war armament, as well as military impedimenta from the Mid-Eastern territory to the Pacific Coast. For example, one of the larger roads serving the Pacific Coast reported that during the month of April, 1943, it received 6,954 Eastern-Allegheny gondolas under load. This illustrates the trend of movement as result of the two-ocean war front.



Over 900,000 Barrels of Oil Are Now Delivered to Eastern Destinations Daily



The Virtual Pooling of Refrigerator Cars Has Meant Increased Efficiency and Prevented Shortages

The oil movement all-rail was an entirely new departure, as the railways had handled almost no oil to the East from the fields. Not much more than a year ago it was considered impossible to haul a quarter of a million barrels of oil daily into the East by rail. Yet, during the week of April 3, an average of 933,966 barrels per day were handled, or nearly four times as much as had been considered the maximum!

Oil for the Eastern Furnaces

This movement continued to accelerate throughout the summer of 1942, until the former peak of 856,710 barrels a day was reached during the week ended September 19, 1942. The combination of adverse weather and heavier traffic then resulted in a reduction throughout the winter. As soon as the weather moderated, the carefully laid plans for building this movement to new heights came to fruition, and the huge total quoted above was reached in the week ending April 3. Of this total, the daily average tank car deliveries amounted to 912,919 barrels, while 21,047 barrels daily arrived in drums shipped in box cars. This latter movement is a development of this year and began on January 10. It consists largely of kerosene consigned to Massachusetts points,

more kerosene being consumed in that state than in any other state. To aid the movement in box cars, the Army made 200,000 drums available for loading.

The movement of oil was the subject, on last September 24, of the first priority of World War II on the movement of commodities in rail transportation, when the War Production Board issued a so-called Certification of Necessity for Priority Action No. 1. This prescribed to the O.D.T. the commodities to which precedence should be given—matter discussed in detail in the article on wartime transportation organization, elsewhere in this issue.

The oil movement has perhaps received more attention in Washington than any other single factor of the railway transportation situation. Petroleum Administrator Harold L. Ickes has, of course, been intimately concerned with many phases of it, but it has also attracted considerable attention in Congress. On February 16, 1943, in discussing the question at length, Representative Bates from Massachusetts said: "The railways have done a remarkable job in developing their tank car program and have averted a great disaster on the eastern seaboard."

The oil movement has been handled effectively only by means of complete co-operation between the individual railways and between the railways, the shippers and the various government agencies involved. The movement of both loads and empties has been the subject of continual study and attention, and operating and car handling improvements have been continual and effective. Road handling has been speeded and the all-important movement through terminals has shown excellent records. The handling of tank cars by shippers and receivers has been the subject of constant supervision.

Plans for still further increased movement are well under way. The construction of additional facilities for unloading tank cars on the Atlantic seaboard was begun in March and is approaching completion—a project which will increase the capacity of the terminals by more than 950 tank cars. These added facilities are being constructed by the railways and the oil companies involved, following surveys made by the A. A. R. and the Petroleum Industry War Council.

A Mid-Winter Grain Rush

Another readjustment in traffic conditions arose when the railways were called upon to handle an unprecedented movement of grain during the winter months. During the ten weeks from December 5, 1942, through February 6, 1943, for example, loadings of grain and grain products amounted to 464,937 cars, or 7.4 per cent more than is ordinarily handled during the peak grain loading period from June 6 through August 8. This was brought about by a variety of conditions. For one thing, lack of storage space had the effect of holding back on the farms grain that would normally have moved to terminal elevators during the 1942 harvest season. During the winter increased demands led to abnormally heavy movements of wheat to flour mills; to distilleries for the manufacture of alcohol for war production, and to ports by reason of the acceleration of shipments under the lend-lease program. This in turn created room in the elevators to which much of the wheat that had been stored on the farms was shipped.

The easing of the storage situation during recent weeks indicates that the elevators will be in position to handle a much heavier rail movement of grain following the harvesting of both winter and spring wheat this summer. This is one of the factors which will contribute to a tight situation in Class A box cars. Not only the railways, but also the shippers, under the joint auspices of the O.D.T. and the I.C.C., are already taking steps to combat the threatened car shortage, as described elsewhere in this issue.

"Freezers" in Great Demand

The railways have been confronted with a greatly increased demand for refrigerator cars, brought about by heavier movements of perishables and canned goods to our fighting forces and under the lend-lease program, and, so far as the large Florida perishables are concerned, by the diversion to the railroads of traffic which, in peacetime, moved in coastwise ships. The wartime traffic density, interfering with the normal relocation of such equipment, has also interfered with the maximum utilization of this type of car. It is the expectation of the O.D.T. that the rationing of canned foods will result in a still further expansion of the demand for fresh fruits and vegetables and hence a still greater demand for refrigerator cars.

The O.D.T. also reports the shifting of a growing volume of perishable shipments from highway trucks to the rails, citing the fact that the shipments of Florida citrus fruits by truck decreased 40 per cent in the last winter season, this alone accounting for an additional 6,000 carloads of traffic for the railways. This additional business also includes a considerable portion of the traffic diverted from ships, as a large percentage of the citrus carried in coastwise vessels was brought to the ports in trucks.

Specifically, so far as the Florida situation is concerned, a more extensive use of ventilated box cars is expected to ease the situation somewhat. In order to maintain an adequate supply of such cars in the Florida citrus-producing area, the Car Service division of the A.A.R. has issued an order to all railroads prohibiting the use of this type of car for loading in the north and requiring the immediate return of such cars to the railways serving Florida.

To serve as an overall palliative, the O.D.T. inaugurated a plan of refrigerator car pooling on September 1, 1942, which is operated under the direction of an executive committee composed of representatives of railroad and privately owned or controlled car lines and shipper car owners. The idea was that "much wasteful cross-hauling and duplication of distribution in the operation of competitive car companies can be avoided." Further, according to the O.D.T., conspicuous savings in refrigerator cars have been made through the provisions of O.D.T. General Order No. 18. Also, the requirement, under the order, that California citrus shipments be loaded 567 boxes to the car is expected to save 13,725 refrigerator cars in long-haul service between March 1 and October 1 of this year.

While the customary slackening of demand in the between-season period of April and May has now relieved the situation, a recent press statement from the O.D.T. confirms the thought that this situation is merely temporary. "We anticipate," the statement reads, "a renewed tightening in June and fear the development of serious shortages in later months. We predict that stringencies will become particularly acute in October, when, in addition to other seasonal demands, there is a heavy movement of perishables out of California."

During the 1942 season the iron ore carriers handled 92,077,000 gross tons of ore, or 577,000 tons in excess

Ore from the Mines to the Lakes and from the Lakes to the Mills Is Moving in Record Tonnages

of the goal which was set by the War Production Board at the beginning of the season. This movement was also far in excess of anything that has ever been accomplished before, and yet throughout the season the capacity of the railways serving the mines and serving the steel mills was materially ahead of the boat capacity for the intermediate water haul. This spring adverse weather conditions delayed lake navigation to an extent that the original goal of 95,000,000 gross tons of ore set by the War Production Board was first revised to 94,000,000 tons, and then on May 6 a further reduction in the figure was made to 91,000,000 tons.

As to lake traffic generally, while the O.D.T. orders diverting all possible lake vessels to the ore movement cut the season's coal and grain tonnage, 49,005,481 tons of coal were handled over the lakes last season, as compared with 50,911,389 tons in 1941. It is expected that the shipments of oil to the East via the lakes will reach a maximum of 76,000 barrels a day.

The Ports of Both the Atlantic and the Pacific Are in Continuing Fluid Shape

Most of the details as to military traffic are shrouded, and quite properly so, under military secrecy. Nonetheless, it can be said that the railways have handled the military traffic to the entire satisfaction of the military leaders. Some of the details that have been made available indicate the immensity of the task performed. For example, in the first 12 months of the war, the railways hauled 79,443 carloads of military impedimenta on troop trains alone, which required the use of more than 55,000 open top cars. As compared with the peak year's movement in World War I of 11,224,427 tons of Army freight, in the first 12 months of the current war the railways handled 41,000,000 tons, which included one month when 5,600,000 tons were handled. Meanwhile, freight shipped directly for the account of the Navy has grown to about 50,000 cars per month, and this does not include shipments under private bills of lading by contractors for the Navy.

Constant efforts are being made by the Transportation Corps and the A.A.R. to improve the handling of military traffic. A series of seven three-day conferences between the freight container bureau of the A.A.R. and the Transportation Corps were held at various places between March 23 and May 11. The purpose was to discuss the most efficient ways to pack, crate and load war supplies; the proper construction of shipping containers, and freight handling and inspection.

No Congestion at Ports

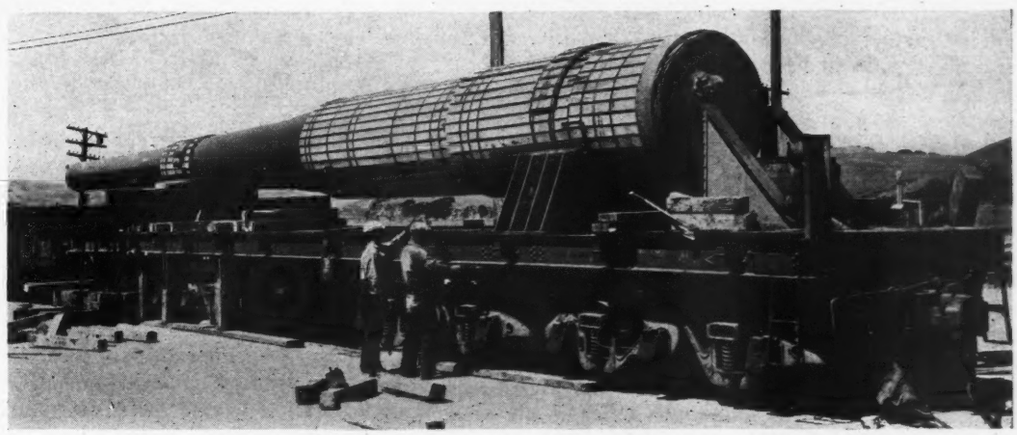
The railroads handled the greatest volume of export freight traffic on record and did this without congestion in 1942. Every port in the United States is in a completely "liquid" condition. Cars of export freight, excluding grain and coal, unloaded at all ports in this country in 1942 totaled 859,276, compared with 632,083 cars in 1941, an increase of 36 per cent. Approximately, 2,500 cars of export freight are now being unloaded daily.

The number of cars of export freight unloaded at North Atlantic ports in 1942 was nearly 16 per cent greater than the number handled in 1918 in the first World War. Moreover, the average tons per car in 1942 were considerably greater than in 1918, so that the amount of war material moved last year greatly ex-

ceeded that in any comparable period of the last war. Yet, a survey of port capacity shows that every North Atlantic port can handle much more export freight than was moved to those ports by the railroads in 1942. Furthermore, in addition to the heavy increases in movement through the North Atlantic ports there is a very heavy movement of export freight through other seaports in this war. Approximately one-third of the total export freight now handled is moving to Pacific ports, in contrast to a very small movement in the first World War.

The character of freight handled at the various ports has changed materially in recent months, compared with the early part of 1941. Of the total amount handled in October, 1942, export freight other than grain amounted to 96 per cent, export grain 3 per cent and coastwise and intercoastal traffic accounted for only 1 per cent. In contrast, in January, 1941, export traffic other than grain accounted for 67 per cent, export grain 3 per cent, and coastwise and intercoastal 30 per cent.

This record of port fluidity, which is being maintained in 1943, is a tribute to the co-operation between all the agencies that have to do with export traffic. Cars of export freight other than grain or coal unloaded at Atlantic, Gulf and Pacific ports in April of this year totaled 99,240 cars, compared with 74,061 in April, 1942, an increase of 34 per cent. The average daily unloadings of 3,510 cars of export and coastal freight at all United States ports in April, 1943, was the heaviest on record, the nearest approach being in March, 1943, when the daily average was 3,386 cars. In the first three months of 1943, cars of export freight, other than grain or coal, unloaded at Atlantic, Gulf and Pacific ports totaled 276,684 cars, an increase of 58,555 cars or 22 per cent compared with the same period in 1942.



The Handling of Military Traffic Is All - Important.— Shipments Such As This Cannot Be Moved Across Country Except By Rail

What Is in Prospect?

The foregoing review of the 1942-43 period relates a story of splendid achievement in wartime railway transportation. The story is by no means completed, however, for there is a tremendous load still to come and every factor entering into railway operation is already showing signs of strain. The freight car situation is serious. During the week ended March 27, the daily freight car surplus declined to 35,157 cars, a very narrow margin, as shown by the car surplus for the same week in preceding years:

1939	201,743 cars
1940	187,891 "
1941	71,265 "
1942	57,990 "

These figures portray the steadily worsening situation, and show incontrovertibly that new cars are needed, together with additional locomotives to haul them.

Unfortunate indications that the railways are only a hop, skip and a jump ahead of serious congestion are piling up with increasing frequency. Until recently accidents, wash-outs and other delays through unusual causes were not particularly serious, as American railway men are accustomed to dealing with emergencies. Today, however, it takes very little misfortune to cause a traffic congestion, showing almost daily how perilously close to the saturation point the railways have approached.

Without minimizing the magnificent performance of the railways in the least, the question might well be asked as to how long such performance can continue. Every day shows a worsening of the situation. Many more miles are being run out of locomotives and cars than are being put back in; the manpower situation is rapidly becoming crucial and no relief is in sight. While the railways have accomplished miracles in the 18 months of wartime transportation to date, previously undiscovered sources of transportation capacity have practically all been ferreted out. Without assistance in the way of new equipment, the prospects for next fall and winter are not bright.

The Box Car Situation

Hitherto, the saving feature of operations has been that, through the tremendously increased efficiency of box car handling brought about by the railways and shippers, the supply of box cars has been adequate. Box cars do not last forever, though, and a recent statement by Chairman W. C. Kendall of the Car Service division, A. A. R., sounds this warning:

"The box car supply this year for commodities requiring class 'A' equipment promises to be extremely tight. No new box cars have been approved for construction in 1943. A bare minimum of 15,000 cars proposed to be built in the first half of 1944 are still unapproved. Little aid can be obtained from heavy repair bad orders, which are down to 1.2 per cent. Less than 25,000 plain box cars were added to our ownership last year, and only 10 per cent of the cars now in service are new in the past three years. The proportion of cars in first class condition is decreasing due to damage, contamination and 'wear and tear.'

"Traffic demands for high class box cars are exceptionally heavy at this time and undoubtedly will in-

crease substantially. Grain and grain products loading is greater now than during the last grain harvest, an unprecedented condition. Millers are working around the clock. The Commodity Credit Corporation is endeavoring to move over 400 million bushels of wheat before the end of June. Extraordinary amounts of grain are going into the feed and distilling programs. Ammunition and other war materials requiring high class cars will move in increasingly heavy volume. The grain movement this summer is likely to be greater than last year because of more storage room expected to be available at the markets. Grain car liners formerly employed to permit use of second grade cars will not be available this year in sufficient quantity to be of much assistance.

"With any increase in the number of class 'A' cars unlikely and facing growing traffic demands, it is essential that the present supply of these cars be conserved in every practicable way. To this end, it seems essential that all railroads take such action as may be calculated to accomplish this, instructing all employees concerned accordingly. Specifically, it is suggested that:

"1. Positive instructions require that no class 'A' box cars be furnished for loading any commodity that will so damage or contaminate the interior as to make it unfit for further high class loading. Violations of this requirement should be dealt with severely.

"2. Where contaminating commodities require a tight good order car (examples: lamp black, hides), care should be used to select equipment that has previously been used in such service. Additional good order cars should not be contaminated.

"3. Care should be taken to keep doors closed on box cars to avoid wetting floors and walls from rain or snow, thus unfitting them for use without delay.

"4. Shippers and receivers should be informed of the critical nature of the class 'A' box car supply, particularly those using this class of car, and they should be strongly urged to avoid practices in placing or removing dunnage and blocking likely to damage the walls and floors of cars or to contaminate them.

"5. While this is normal practice on every railroad, extreme vigilance to detect defective equipment that might cause accidents, and close supervision against fire hazards, will help conserve the box car supply."

O.D.T. Alarmed

That the Office of Defense Transportation is not viewing the situation complacently was revealed recently by Henry F. McCarthy, director, Division of Traffic Movement, O. D. T., who said: "The car supply is not comfortable and the car movement is not at all re-assuring. The time required for transit of railway freight shipments during the cold weather of last winter increased as much as 50 per cent in some instances. The apparent saving of cars as the result of O. D. T. orders 1 and 18 does not take into account other factors developing out of compliance with the orders, which have an opposite effect, such as empty movement of cars, cars made empty at outlying points, car-days used in filling out to minimum requirements and others. Still, General Order No. 1 probably released enough cars to save the day last fall, but it certainly cannot be relied upon to carry us through 1943.

"In its conception, General Order No. 18 was designed to secure maximum utilization of motive power and the car savings were considered as a desirable by-product. With full loading of cars, it was our thought that the expected large increase in ton-miles (which did occur) could be handled without requiring an equivalent increase in the number of locomotives required. Immediately after the order became effective there was a period of comfortable car supply, which resulted in a tendency to relaxation on the part of some persons concerned in getting the greatest benefit from it. That easy car situation no longer exists. There are competent men who are willing to compel necessary activity to get maximum results from the order, if necessary."

Also, the O. D. T. has issued blunt warnings that tight situations in the supply of open-top cars and locomotives are likely to appear more frequently and to last longer in 1943 than was the case in 1942, and serious delays are likely to result in the movement of essential bulk commodities. This prediction is based upon an estimated loading (excluding ore in ore-cars, which is a highly specialized movement) of 19,678,000 open-top cars in 1943, as compared with 19,297,000 in 1942. The O. D. T. warns that this increase will be greater because of the increased length of haul, particularly with regard to coal cars.

The railways have done everything they can do to secure greater rolling stock utilization and, in this effort, they have been greatly aided by the shippers, the Interstate Commerce Commission and the Office of Defense Transportation.

Victory Rides America's Railways

(*Continued from page 988*)

it is contrasted with the unwholesome results of excessive centralization of authority for transportation which characterized the last war. But the fact that correct procedure has been discovered does not prove that it has been carried to perfection. It has not. Continued consultation by the interested parties, and greater devotion to the national interest—as opposed to immediate personal concern—by every traffic and transportation man is urgently needed to counteract the constantly growing difficulty of our job.

For the transportation task is steadily mounting, while facilities to handle it are barely more than stationary. There were about 2,000,000 freight cars on the railroads in the first quarter of this year—only 4 per cent more than last year—to handle ton-miles which already are running 26 per cent higher than a year ago. However, the winter just past was the hardest one in a long time. While the wheels of the transportation machine creaked under the load, they did not give way. The better weather that now lies ahead of us will, in part, offset the growing load. The rest of the increased burden will have to be taken on by more skillful and devoted performance by traffic and transportation men, and co-operating government officers—all of whom are more capable of the task as their experience in dealing with war traffic increases.

This year is likely to be our hardest, since further increases in 1944 can not possibly be dealt with without large increases in and renewals of railroad rolling stock and facilities. Thus 1944 will bring either less traffic, or more equipment with which to handle it—so 1943 looks like the year of supreme effort for transportation men. They will do the job—and by it the world will learn, what transportation men already know, that free collaboration of thousands of competent and conscientious men will accomplish results that no authoritarian bureaucracy could ever yield, or exact from others.

Increase Volume—Reduce Costs*

Post war interest points to importance of fostering maximum use of railways as means for securing minimum rates

By Samuel O. Dunn

Chairman, Simmons-Boardman Publishing Corp., and Editor, Railway Age

THE railways have made new records recently in handling freight that may have important effects on competition after the war. The increases in the volume of both freight and passenger traffic they have handled have received widespread attention and comment. The increase in the *economy* with which they have handled traffic has attracted much less attention, but has been no less significant and important, for it forcibly illustrates what is perhaps the most important economic *fact* about the railroad industry, but a fact which for years has been obscured by unusual developments.

This fact is that the railroad industry is almost uniquely dependent on *volume* of business for securing low operating costs and relatively high net return on investment and capitalization. When volume *declines* it suffers more than almost any other industry from decline of its net earnings from operation and of its net income after fixed charges. When volume gains, on the other hand, it benefits relatively more than almost any other industry from increase of its net earnings from operation and of its net income after fixed charges, but before taxes. Taxes are now a different and much sadder story, which, however, has nothing to do with economy of operation.

Many people know that the railroad industry has large fixed interest charges on its indebtedness, and that they get it into trouble when its business largely declines. What few realize is that, because of its nature, a large part of its *operating expenses* also are virtually fixed, and that these virtually fixed operating expenses cause it even more trouble than its fixed interest charges when its volume of business, and consequently its gross earnings, seriously decline. But, on the other hand, the railroad industry has the great advantage that when its volume of traffic and its gross earnings increase, its interest charges are still "fixed," and that a large part of its operating expenses also are still virtually fixed. Consequently, at such times its operating costs per unit of traffic ordinarily decline, and its net earnings from operation largely increase.

Later I shall analyze in some detail the comparative results of railway operation in 1929 and 1942. But in an effort to clarify at the very start what I am driving at, I call your attention to the following facts: The railways rendered 48 per cent more service in carrying freight and passengers in 1942 than in 1929, when their total traffic attained its previous maximum. Because their rates were lower in 1942, they received only 19 per cent more gross earnings than in 1929 for rendering this greatly increased service. They paid their employees an average annual wage 32⅓ per cent higher in 1942 than in 1929. Nevertheless, in rendering 48 per cent more service than in 1929 they incurred only 3⅓ per cent more operating expense (including equipment and joint facility rentals). Consequently, from an increase over 1929 in gross earnings of only 19 per cent, they derived an increase over 1929 in *net earnings from operation* of 63 per cent.

I emphasize that these are merely results of operation, and have nothing to do with fixed charges on indebtedness. But let us carry the figures a step farther and include fixed charges on indebtedness. These fixed charges were somewhat less in 1942 than in 1929. The outcome was that net income after fixed charges, but *before taxes,* in 1942 was almost 70 per cent greater than in 1929.

What Made This Result Possible?

What was it that enabled the railroad industry, in spite of lower rates and higher wages, to get 63 per cent more net earnings from operation in 1942 and 70 per cent more net income after fixed charges, but before taxes, than it got in 1929, its previous most prosperous year?

These extraordinary results were partly due to inadequate expenditures for maintenance of the properties owing to inability to get sufficient materials and lack of manpower. They were partly due to favorable operating conditions—longer hauls of freight, handling of more traffic on main lines and less on branch lines, unprecedented co-operation by shippers in loading cars heavier and loading and unloading them more expeditiously, unprecedentedly efficient work by management, supervisory officers and employees, all inspired by patriotic desire to play their part in winning the war. But, making full allowance for all other influences and factors, nobody can study and rationalize the facts without concluding that the greatly preponderating influence and factor which enabled the railways to secure such greatly reduced operating costs per unit of traffic handled and such greatly increased net earnings from operation was the great increase in the *volume* of traffic available and handled.

And that is a conclusion of the first importance in its bearing on what should be the policies of railway management, and the policies of government affecting transportation, after the war. Because for years we have been following policies of multiplying competing means of transportation, and of dividing the traffic between them, without any real consideration of whether and the extent to which we were thereby unnecessarily increasing the nation's total cost of transportation. And now we find that even in 1929, as a result, we were really using only approximately two-thirds of the plant of our railroads, and that the other approximately one-third

* An address delivered before a joint meeting of the New York Electrical Society and the American Institute of Electrical Engineers at New York on April 27.

was merely "stand-by" plant. For that is what is shown by the fact that they rendered in 1929 only two-thirds as much service as in 1942.

You may raise a question as to whether capacity of plant was not increased in the meantime. If so, it was increased but negligibly. For total investment increased hardly at all. Miles of line and track declined slightly. Aggregate tractive power of locomotives declined 20 per cent; total capacity of freight cars declined 16½ per cent.

The increase in service rendered was due to more complete and efficient use of all parts of the plant. Ton-miles *per mile of line* increased 50 per cent, and per mile of track, 52 per cent. On the average, each available freight locomotive rendered 84 per cent more service; each available freight car, 62 per cent more. And on much the same lines and tracks, the amount of service rendered with each passenger locomotive increased 199 per cent and with each passenger-carrying car 146 per cent.

Volume Affects Costs

Now, let us look at the effects on costs. There being virtually no increase in total investment, but an increase of almost 50 per cent in total service rendered, it follows that the *capital cost* of rendering one or any given number of units of service declined about one-third. And there was almost a corresponding decline in operating costs. To state the matter concretely, gross earnings per 1,000 traffic units—i. e., what the public paid for service—were $11.62 in 1929 and $9.34 in 1942, a decline of almost 20 per cent. But operating expenses per 1,000 traffic units in 1929 were $8.57 and in 1942 only $5.99, a decline of 30 per cent. Hence, net earnings from operation per 1,000 traffic units were $3.05 in 1929 and $3.35 in 1942, an increase of only about 10 per cent. And yet *total* net earnings from operation increased 63 per cent, because they were derived from handling almost 50 per cent more traffic.

Now, what does all this indicate regarding competition for traffic, and especially for freight, after the war? It plainly shows that the rates the railways can afford to accept depends very largely, indeed, on the volume of traffic they can get. And, of course, under peacetime competitive conditions the volume they can get depends very largely on the rates they make, or that are made for them. Well, now, having had such large volume during the war, including much traffic diverted to them from their former competitors, suppose that in the post-war period the railways should decide upon a policy of making rates having the primary objective of retaining and securing the largest volume possible.

Table I.—Class I Railways in 1929 and 1942

	1929	1942	Per cent Increase or Decrease
Property investment	$26,039,558,344	$26,656,933,680	+ 2.4
Total operating revenues	6,279,520,544	7,466,227,054	+ 18.9
Freight revenue	4,825,622,121	5,944,742,473	+ 23.2
Average revenue per ton-mile	1.076¢	0.932¢	− 13.4
Passenger revenue	$873,564,246	$1,028,185,625	+ 17.7
Average revenue per pass.-mile	2.81¢	1.92¢	− 31.7
Total operating expenses (including equipment and joint facility rents	$4,631,139,972	$4,782,842,997	+ 3.3
Number of employees	1,660,850	1,271,077	− 23.5
Total compensation	$2,896,566,351	$2,932,225,220	+ 1.2
Average compensation per employee	1,744	2,307	+ 32.3
Net earnings from operation	$1,648,380,572	$2,683,384,057	+ 62.8
Taxes	396,682,634	1,202,443,297	+203.1
Net railway operating income	1,251,697,938	1,480,940,760	+ 18.3
Per cent return on investment	4.81	5.56	+ 15.6
Ton-miles (thousands)	447,321,561	638,069,444	+ 42.6
Passenger-miles (thousands)	31,074,135	53,675,562	+ 72.7
Total traffic units (thousands)*	540,543,965	799,096,130	+ 47.8
Total oper. rev. per 1,000 traffic units	11.62	9.34	− 19.6
Total oper. exp. (including equip. and joint fac. rents) per 1,000 traf. units	8.57	5.99	− 30.1
Net earnings from railway operations per 1,000 traffic units	3.05	3.35	+ 9.8
Taxes per 1,000 traffic units	.73	1.50	+105.5
Net railway operating income per 1,000 traffic units	2.32	1.85	− 20.3

* Computed by treating one passenger-mile as equivalent to three ton-miles.

Table II.—Class I Railways in 1929 and 1942

	1929	1942	Per cent Increase or Decrease
Miles of line	241,584	231,012	− 4.4
Traffic units per $1 of investment	20.8	30.0	+ 44.2
Property investment per mile of line	$107,787	$115,392	+ 7.1
Operating revenues per mile of line	$25,993	$32,320	+ 24.3
Operating expenses (including rentals) per mile of line	$19,165	$20,704	+ 8.0
Ton-miles per mile of line	1,851,617	2,762,061	+ 49.2
Passenger-miles per mile of line	128,627	232,350	+ 80.6
Traffic units per mile of line	2,237,499	3,459,110	+ 54.6
Miles of track	429,054	403,625	− 5.9
Ton-miles per mile of track	1,042,576	1,580,847	+ 51.6
Passenger-miles per mile of track	72,425	132,984	+ 83.6
Traffic units per mile of track	1,259,851	1,979,798	+ 57.1
Number of employees	1,660,850	1,271,077	− 23.5
Ton-miles per employee	269,332	501,974	+ 86.4
Passenger-miles per employee	18,710	42,228	+125.7
Traffic units per employee	325,462	628,677	+ 93.2
Number of freight locomotives	44,676	34,639	− 22.5
Ton-miles per freight locomotive	10,012,570	18,420,550	+ 84.0
Number of freight cars on line	2,277,505	2,006,925	− 12.0
Ton-miles per freight car	196,409	317,934	+ 61.9
Number of passenger locomotives	11,801	6,825	− 42.2
Passenger-miles per passenger loco.	2,633,178	7,864,551	+198.7
Number of passenger-carrying cars	39,394	27,706	− 29.7
Passenger-miles per pass.-carrying car	788,804	1,937,326	+145.6

They have already shown that, when they use their present full capacity—which is virtually the same capacity they have had for a decade and a half—they can handle 50 per cent more traffic than in their previous most prosperous period at capital and operating costs one-third less per traffic unit handled. And the possibilities of largely increasing their capacity by additional investment, and of reducing their capital and operating costs per unit of traffic if they can get sufficient volume, are far from exhausted. There is no practical limit to the increase of railway capacity that improved engineering now makes it possible to effect by constant piecemeal investment to remove bottlenecks wherever increase of traffic shows that bottlenecks exist. The total increased investment and capital costs required for this purpose may be absolutely large, but nevertheless can be small in proportion to the total increase of capacity accomplished. And not only does increased volume tend automatically to reduce operating costs, but there are available improved equipment and materials—and more of them should steadily be made available—the acquisition and use of which, together with improvements in methods of operation that never cease, will accelerate the downward tendency of operating costs, provided a sufficient volume of traffic can be secured.

One of the most important cumulative effects of all such developments is the saving they cause in the amount of labor required to handle a given amount of traffic, and the consequent reduction in labor costs per unit of traffic. Average annual wage per railway employee in 1929 was $1,744 and in 1942 was $2,307, an increase, as I have already said, of 32 per cent. But ton-miles handled per employee increased from 269,000 to 502,000, or 86 per cent; passenger-miles per employee, 126 per cent; and total traffic units per employee, 93 per cent. The result was that, in spite of the increase in wages, labor costs per 1,000 units of traffic declined from $4.95 in 1929 to $3.46 in 1942, or 30 per cent.

Labor unions base demands for advances in wages

upon such increases in the so-called "productivity" of employees. And unquestionably most employees did work harder and more efficiently in 1942 than in 1929. But, obviously, the increased output per employee, and the consequent great saving of labor and reduction of labor costs, were due almost entirely to the larger volume of traffic and better and more intensive utilization of a plant provided by capital, almost all of which had been invested prior to twelve years before—a plant which in 1942 had cost $21,000 for every person employed in maintaining and operating it.

Meeting Competition After the War

Consider, now, what the facts given indicate regarding competition in transportation after the war. Assuming (1) that the railways can get as large a volume of traffic as now, (2) that there will be no substantial advances in the wages and prices they have to pay, and (3) that they can get a large reduction of taxes, the facts given show that they can afford to make lower average rates than at any time during the last quarter century.

Average revenue per ton-mile last year was 13 per cent lower than in 1929. Taxes were $1,200 million, or three times as much as in 1929. Suppose that after the war taxes should be reduced to only twice as much as in 1929. That would save $400 million, or $100,000,000 more than the reduction of rates recently ordered by the Commission; and this, if applied entirely to reduction of freight rates, would make average revenue per ton-mile 20 per cent lower than in 1929. Net operating income last year yielded a return of 5.56 per cent on investment. Reduce that to 5 per cent, which is a sufficient average return over periods of years, and, on the basis of present investment, there is saved another $150 million, which, if also applied in reduction of freight rates, would make revenue per ton-mile average 8.45 mills—21½ per cent lower than in 1929, 25 per cent lower than it averaged in the decade ending with 1929, and lower than in any year since 1917.

If an average reduction of that much in railway freight rates were allowed to be applied by the railways where it would be most effective in meeting competition, it might be their competitors, not the railways, that would have most reason to fear transport rivalry after the war. But could it be made? And would the conditions of competition be such as to enable the railways to get a volume of traffic approximately equalling their capacity if it were made?

The answers to these questions depend upon the answer to another one. Does the public, especially producers and shippers, want transportation at the lowest rates consistent with good service; do they know the only way they can get it, and can and will they exert enough effective pressure on government policies to enable them to get it? The only way they can get the cheapest transportation consistent with good service is for the railways to be kept loaded approximately to their capacity with all the traffic they are suitable for handling and to be afforded opportunity steadily to increase their capacity as the demands of traffic increase.

But policies of government will largely determine the extent to which this will be done. Will government after the war let the railways make low enough rates to meet competition, but nevertheless high enough to cover additional costs of handling additional traffic? Will it reduce the taxes of the railways as much in proportion as those of other carriers? Will it, directly or indirectly, force them to pay higher wages for shorter hours of work than other carriers? Their taxes and wages will largely determine the rates they can make, whatever their volume of traffic; and the rates they can make will largely determine the volume of traffic they can get.

If they can get enough traffic, will the government let them derive enough net earnings from their traffic as a whole to restore their credit, thereby enabling them to raise enough capital to rehabilitate, improve and expand their properties? Upon that will largely depend their ability to achieve the lowest practicable capital and operating costs per unit of traffic.

Will the government subsidize their competitors by spending huge amounts upon waterways, highways and airways without charging the users of these facilities adequately for their use, thus diverting from the railways large amounts of traffic which they could and would get and hold if all carriers had to charge rates covering the actual costs of their service, including investment in government-owned property used by them?

I do not know the answers to these questions regarding future government policies. Of some things, however, I am certain; and I am certain of them partly because of our experience during the last two years. The nation can never in future afford to take the risk of letting the capacity of its railroads decline much below the nation's maximum probable, or even possible, early need, whether in peace or war, for producing and shipping goods. About one-third of railroad capacity before the depression, and fully one-half of it during the depression, was unused "stand-by" capacity. If this railroad "stand-by" capacity had not been available when, owing to the war, shipping for coastwise service became unavailable, transportation by highway was curtailed, and total demands of traffic were enormously increased, it would obviously have been impossible, because of lack of transportation, for industry to have accomplished the vast increase of production which we have already witnessed and is still continuing. Even in time of peace there has been need in most parts of the year for a large "stand-by" railway capacity with which to handle traffic diverted from waterways and highways when winter weather conditions in the northern part of the country have hindered or prevented transportation by highway and waterway.

Stand-by Capacity Costs Money

But railway "stand-by" capacity, if provided and maintained, must be paid for; and, in the long run, by the public. "Stand-by" capacity existed when we entered the present war period because the public had paid enough for railway transportation before the depression to make possible a sufficient investment in the railway plant to provide it. None of the "stand-by" capacity was created during the depression, because, owing to inadequate earnings, the railways were able then to make virtually no increase in their investment.

But why have and pay for so much unused railway capacity? Why not, when there is enough production and total traffic, use approximately the largest capacity the railways can provide, and get benefit by the lower and declining costs and rates for transportation which, other things being equal, will result?

But this cannot be done if government is allowed to follow policies of establishing wages and working conditions for employees that make the unit costs of railway labor excessive compared with those of competing carriers; of taxing railways excessively as compared with competing carriers; and of providing other carriers

at the expense of the taxpayers with large parts of the property they must use in rendering their services. Such policies inevitably divert from the railways large parts of the traffic they are economically best fitted to handle; prevent them from handling traffic at as low capital and operating costs, and at as low rates, as they otherwise could; diffuse the traffic unnecessarily and too thinly over a multiplicity of agencies; and thereby enormously increase the total burden of transportation costs that must be borne by the public, with few or no compensating advantages of service.

Railways and Other Transportation Agencies

It is far from my purpose to contend that the railways can secure, or should be allowed to secure, a monopoly of transportation, or even of freight transportation, after the war. Freight is roughly divisible into commodities that are of high value, of lower value and of very low value in proportion to their weight and bulk, and into traffic that moves short distances and long distances. Cargo planes will be effective competitors principally for the transportation of commodities that are of high value in proportion to their weight and bulk, and moving long distances. Trucks will be effective competitors for short-haul freight, especially of high value, and for some kinds of freight requiring special handling. Tankers and pipelines will transport oil moving long distances and trucks will distribute it short distances. The Great Lakes will continue to haul ore, coal, and grain received from and delivered by them to the railways. Coastwise steamships will be effective competitors for cheap, heavy and bulky freight, and also for much other freight, moving long distances.

But a railway has one very important economic advantage over almost all other carriers. A ship, a truck, a cargo plane is a single unit, the carrying capacity of which cannot be increased after it is built. On the other hand, the fixed plant and equipment of a railway are such that, once it is built, there is virtually no limit to the increase in traffic that it can be made capable of handling, and at declining capital and operating costs per unit of traffic handled—provided, of course, that advances in the wages, prices and taxes it must pay do not nullify this naturally downward trend of its costs.

A car added to a freight train increases the train's capacity and earnings with hardly any appreciable increase in the operating cost of moving it. When available locomotives and freight cars are being fully utilized, additional locomotives and cars can be acquired and used at capital and operating costs relatively small compared with the increase in gross earnings their use will cause. When tracks and yards become congested, their capacity can now usually be adequately increased piecemeal, as I already have emphasized, by means which modern engineering has made available—centralized traffic control, car retarders and so on—with capital expenditures that are small compared with the increases in gross earnings they make possible.

In brief, the railways afford the best example available of an industry whose costs tend constantly to decline as its business increases—a fact of the utmost importance in projecting what should be the future of transportation in this country, but obscured for years by the great increases in wages and prices that occurred during and immediately following World War I, and by the subsequent diversion of traffic to other carriers, largely by government policies.

Experience during World War II has revived a lesson which we were taught by long experience before we entered World War I, but which apparently most of those most concerned had forgotten. In the quarter century ending with 1916 the average revenue the railways received for carrying a ton one mile declined 25 per cent; and yet meantime their annual net operating income increased from $330 million to $1,059 million, or 220 per cent. That reduction of rates and increase in net earnings were simultaneously made possible by *increase in the volume of railway traffic*. And if the people of this country, especially producers and shippers, really desire the cheapest total transportation service in future consistent with good service, and the maintenance of a railway system with sufficient capacity always to be equal to all the demands that may be made on it, whether in war or peace, they will in future oppose (1) every policy tending to divert from the railways traffic that the railways are fitted to handle, and (2) every policy tending to prevent the railways from deriving from their traffic enough net earnings constantly to expand and improve all their facilities.

America Got Its Start in Life from a Triumph by Individualism over Bureaucracy

"When the new century [i. e., the 17th] opened, France and England stood ready to compete for North America. And, for all France was as keen to seek her interest in the New World as in the Old, the signal advantage, as the event abundantly proved, was to lie with England in this new rivalry in the wilderness.

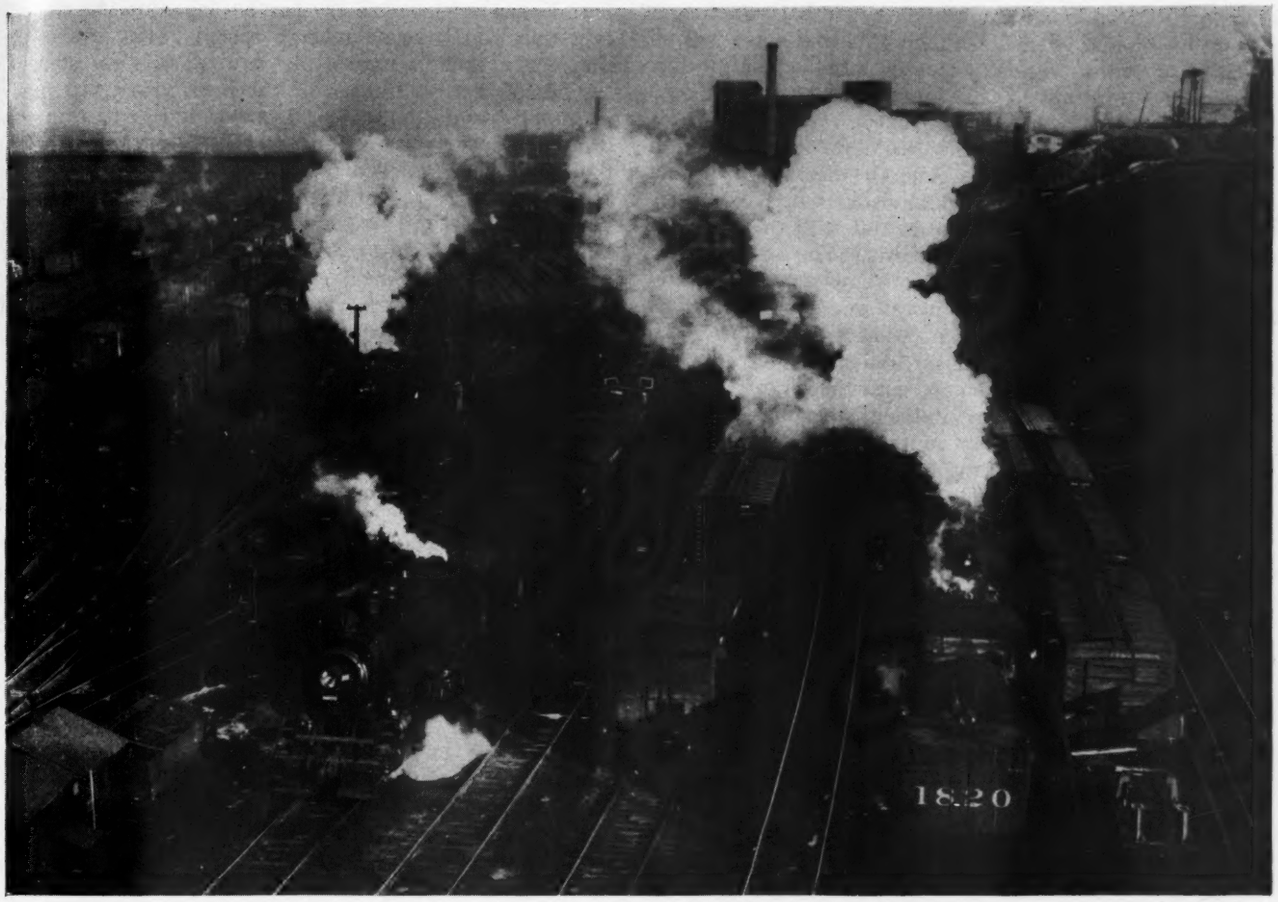
"The reason is now plain enough. England had obtained from the 16th century just the training she needed for winning America in the 17th, while France had unfitted herself for the race by the new life she had learned.

"England had become a commercial nation, quickened in every seaport by a bold spirit of individual enterprise that would dare anything for success. . . . In France, meanwhile, individual initiative had been stamped out, and the authority of the church and state consolidated, to command and control every undertaking.

"France sent official fleets to America and established government posts; while England licensed trading companies, who went to America in their own interest, to serve that interest by succeeding in their own way. The French colonies pined under careful official nursing; the English colonies throve under 'a wise and salutary neglect.' . . .

"The French, when the [French and Indian] war came, had been as long on the continent as the English, and yet they did not have one-tenth the strength of the English, either in population or in wealth."

Quoted from Woodrow Wilson's "History of the American People"



Pre-Classification Has Relieved Many Busy Yards at Intermediate Points on Transcontinental Traffic

America Has Evolved Organization for War Transportation

All the agencies involved in the difficult and complicated task must work together

THE tremendous war production potentialities of the United States would have lain dormant except for the country's ability to produce transportation and, specifically, except for the railways' ability to produce the type of mass transportation that is so essential in war-time. The huge increase in the volume of transportation produced by the railways to meet this need would have been impossible without proper organization and co-operation between all the various agencies involved. War-time transportation is not a one-man job, nor a one-railway job. It is a national undertaking and it requires combined effort—the harmonious working together of the railways themselves, of the shippers, of the Association of American Railroads, of the Interstate Commerce Commission, of the Office of Defense Transportation and of the War Production Board. Among the shippers are included, of course, the railways biggest customers—the Army and the Navy.

At first glance, this might seem an unwieldy organization and it does, in fact, comprise a large number of people who are in position to "throw monkey-wrenches into the machinery." It has not been and is not functioning perfectly in all respects, but, despite occasional lapses, the machinery as at present set up is producing a hitherto unheard-of quantity of transportation. The co-operation and inter-relationship between the integral elements is steadily improving and the job is being done. Whether it will continue to be done under the stress and strain of 1943 traffic depends largely upon how much the efficiency of this vast organization can be increased.

A. A. R. Functions

The A. A. R. plays a vital role as the overall contact agency between the railways, the shippers and the other organizations concerned with transportation. Its activi-

ties in this respect were chronicled in the 1942 Freight Progress Annual of the *Railway Age* and the intrinsic soundness of the original set-up is indicated by the fact that its organization is still functioning well with only minor changes.

One of the activities of the A. A. R. is to serve as a contact with shippers. The general officers and district managers of the Car Service division work intimately with the various shippers' boards and with the vigilance and other committees of such boards. The all-important matter of car supply is under constant supervision and threatened tight spots show up at once and immediate corrective measures are taken. The representatives of the Military Transportation section of the Car Service division are in constant contact with the Transportation Corps officers of the Army and with the officers of the Bureau of Supplies and Accounts of the Navy, so that the movement of important military traffic is not impeded. Similarly, a manager of port traffic in New York and an assistant manager in San Francisco co-operate with all the agencies concerned in export traffic to see that railway transportation to the ports remains efficient.

In addition, of course, the A. A. R. is in constant touch with the O. D. T. and active in interpreting the orders of that body to the individual railways. A representative of the Bureau of Service of the I. C. C. is stationed permanently in the office of the Car Service division of the A. A. R., serving as liaison officer between the two agencies. These activities are supplemented by a large number of other functions, all tending to increase the efficiency of war-time transportation. Some of these have been close studies of the oil, ore and coal movements.

Activities of the I. C. C.

As early as April, 1941, the Bureau of Service of the Interstate Commerce Commission began its campaign to assist in securing an orderly, effective movement of the impending rush of traffic. Commissioner J. M. Johnson and Director Homer C. King of the Bureau of Service have since been co-operating closely with shipper groups, with the Office of Defense Transportation and with the Car Service division of the A. A. R. The field organization of the Bureau of Service has been increased from 16 men to nearly 60. The inspectors are charged with the task of checking all car detention and of working with the railways, the Car Service division and the vigilance committees of the advisory boards. One of the chief values of the Bureau of Service is that it is able to exercise punitive powers when other methods fail to produce results. Moreover, Commissioner Johnson does not hesitate to tell recalcitrant shippers in no uncertain terms what is to be done. As an example, we quote his letter of March 5 to a shipper:

"For some time now, I have been receiving critical reports on your shipments to the treasury department for export. I am just advised that on February 25 you were holding a car placed for loading on the 17th, which was kept on hand eight days, another held for six days and still another for five days. Also that three cars were placed empty on February 11 and not billed out until the 20th.

"I am also informed that after these cars are loaded, you send a list of materials to the treasury department in Washington by mail. The treasury department then secures O. D. T. permits and forwards the government bills of lading. There seems to be no reason why the information is not mailed to the treasury department and permits received before the car is placed or loaded, except that you have no storage space. This means one thing only, that you are using railroad cars for storage.

"When this war loomed on the horizons, it was made plain and certain that railroad cars would be used in this war for transportation and not for storage, because of the disaster to railroad transportation in the last war. It is going to be unfortunate if you don't secure storage space, for steps will be taken at once that this storage of your goods in railroad cars be stopped. Please advise me at once the steps taken."

In a joint letter to the presidents of the National Association of Shippers Advisory Boards and the N. I. T. League and the chairman of the Car Service division, Commissioner Johnson stated on March 10.

"—— the general use of embargoes is more effective in controlling car detention than a general increase in demurrage rates."

Mr. Johnson then quoted the following recommendation made at a joint meeting of the men named above:

"Greater resort should be had to embargoes in those cases where it is found that cars are not being unloaded promptly, and in placing embargoes consideration should be given in each case to the question as to whether the embargo should be general in character or confined to a particular commodity."

Mr. Johnson continued:

"It is clearly necessary that the matter of car detention should be dealt with more vigorously than heretofore and no excuse should be accepted for unnecessary detention. The Commission's service agents have been instructed to pursue this course and to recommend embargoes in every case where it is evident that there is unnecessary delay to cars. I think the same action should be taken by representatives of the advisory boards' vigilance committees, the Car Service division and the individual railroads. The practice of unnecessarily detaining cars must be strenuously dealt with."

A chronological study of the circular memorandums issued to the field force between April, 1941, and the present indicates clearly that they were kept fully informed of all developments. These instructions dealt with all sorts of car-handling problems and they stressed the need of co-operation with the Car Service division and the O. D. T. To assist in obtaining such co-operation, a service agent of the bureau is stationed permanently in the offices of the Car Service division in Washington. W. C. Kendall, head of the division, is also in constant contact and collaboration with Commissioner Johnson and Director King.

To insure the co-operation of shippers, Commissioner Johnson has had a series of meetings with the heads of the shippers' national associations. Further, to insure better car-handling within individual industries, he has called in groups of leading shippers from such industries as the coal trade, the grain trade and the perishable food industry. Such industries have been urged to form committees for better car-handling within their own trades, and the results of the activities of such committees have been most encouraging.

Service Orders Issued

Beginning on January 30, 1942, a series of I. C. C. service orders have been issued, designed to improve the Nation's car handling and to prevent car shortages. A resume of these orders follows:

Order 68: Suspends Rule 24 and amends Rule 34 of Consolidated Freight Classification 14 with the intent

of preventing the furnishing, substitution and use of multiple cars for single shipments.

Order 69: Authorizes railways to unload and place in ground freight for certain New England ports when the necessity arises.

Order 70: Reduced the number of permissible diversions of loaded refrigerator cars to three.

Order 71: Forbids carriers to supply two single-deck stock cars if a double-deck car is ordered and none is available and makes other changes to improve the stock car supply.

Order 77: Suspends the reconsignment privilege on perishables at Potomac Yards.

Order 80: Permitted the handling of grain under the permit system to prevent a car shortage because of the lack of storage space in the elevators.

Order 85: Allows the railways to operate freight trains in excess of the train-limit laws previously enforced in some states.

Order 99: Concerns the appointment of W. F. Kirk as joint representative of the I. C. C. and O. D. T. to supervise the routing of transcontinental freight. This is dealt with in detail elsewhere.

Order 105: Forbids the back-hauling by the railways of their own company material.

Order 113: Provides for increased demurrage charges on heavy duty flat cars and represents the first time that any one type of equipment has been singled out in this manner.

The other orders are concerned with the interchange of cars with the Mexican railways, with local emergency conditions such as floods or sudden traffic congestions and kindred subjects of a local, but important application. There is no doubt but that the orders have been effective in correcting abuses in car handling and also in abolishing for the duration certain practices which, although perfectly legitimate in peace-time, tend to delay cars more than can be permitted in a state of wartime transportation economy.

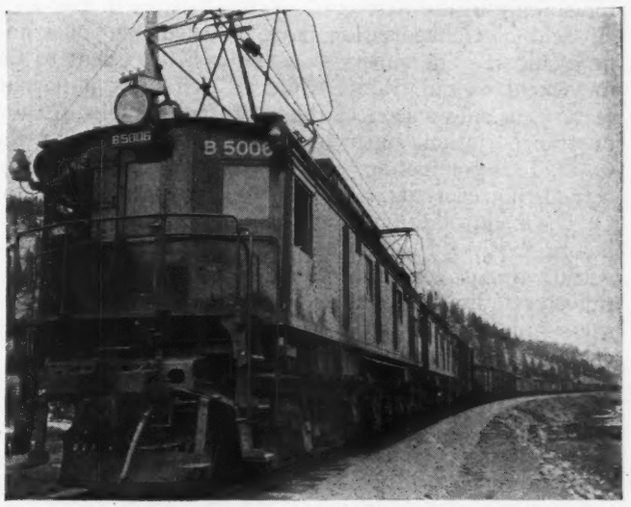
Diverting Transcontinental Traffic

On February 1, 1943, W. F. Kirk, assistant general manager of the Missouri Pacific, was appointed regional director in charge of the Western region of the Division of Railway Transport of the O. D. T. Mr. Kirk's authority from Mr. Eastman read as follows:

"This will constitute your authority, subject to my general supervision and right of modification or revocation in any given case, to co-ordinate and direct domestic rail traffic movements to the extent necessary to eliminate and prevent traffic congestion on the lines of common carriers by railroad located west of a direct line extending northward along the west banks of the Mississippi and Illinois rivers from New Orleans to Chicago, thence along the west and north banks of Lake Michigan to the international boundary. No instructions or directions to shippers concerning the routing, consignment or shipment of traffic to or from any point within this area shall be issued by you, in the exercise of the authority hereby delegated, without my prior approval."

At the same time, Mr. Kirk was appointed chairman of the advisory committee on traffic control of the Western Association of Railway Executives. To give him an official standing with all the agencies involved, he was also appointed an agent of the I. C. C. under Service Order No. 99, dated February 3, 1943, with authority from that body "to divert or re-route transcontinental carload freight traffic from the line of any railroad or railroads which in his opinion cannot currently accept and move such traffic, over the line or lines of any other railroad less congested and in a better position to handle the traffic." In issuing the order, the I. C. C. gave these reasons: "the fact that certain railroads have recently been unable to transport promptly transcontinental carload traffic offered to them so as to serve the public properly; and that an emergency exists requiring immediate action to prevent shortages of railroad equipment and congestion of traffic and to promote the service in the interest of the public and the commerce of the people."

In accordance with these orders, Mr. Kirk has set up a traffic control unit in Chicago. The entire plan is



Transcontinental Traffic Is Now Being Re-Routed Where Necessary Via Whatever Road May Happen to Have the Necessary Capacity at the Time

being worked out in complete co-operation between the representatives of the I. C. C., the O. D. T., the Car Service division and the railroads. The term "diversion of traffic" is not entirely appropriate, as what Mr. Kirk is doing is not so much diverting traffic as finding ways and means of moving traffic, in both directions, in a manner that will avoid overload on the extraordinarily busy lines between the Rocky Mountains and the Pacific Coast.

Also, it has included far more than mere diversion of traffic. For example, when the Los Angeles terminal showed signs of becoming congested as the result of an undue accumulation of empties in the area, Mr. Kirk ordered a 36-hour "hold-back" on all but vital loads and inaugurated preferred movement of empty cars out of that terminal. This was done over a week-end so as to interfere with normal traffic as little as possible. As a result, nearly 3,000 empties were started east out of Los Angeles and the threatened congestion was avoided. Also, in four days, including the 36-hour hold-back period, the rails hauled east only 100 fewer loads than they had moved in the previous four days.

Similarly, the Ogden-Salt Lake City gateway showed unmistakable signs of impending serious congestion. An investigation disclosed that inbound trains were arriving in such order that one switch was necessary for approximately each 4½ cars. The roads involved were requested to pre-classify cars before arrival in the busy terminal, with the result that, since March 15, cars in inbound trains have been so blocked as to average 24 cars per switch, thus relieving the situation at Salt Lake

City-Ogden so materially that the threatened congestion was avoided.

Mr. Kirk's office keeps a daily report on yard conditions throughout the West. Advices are also received in advance of important movements of government and military freight. Possible routes for such shipments are investigated in advance in conjunction with operating officers of the various western lines. This permits effective selection of routes for such movements and, since the entire through movement is planned in advance, the cars are not held up at intermediate terminals.

Other O. D. T. Activities

The Office of Defense Transportation has grown astonishingly in the past year, as its activities in the overall field of transportation have required new men and new offices. The supervision and assistance lent to the movement of rail traffic, while an extremely important feature, is only a part of the really tremendous amount of transportation supervision in all fields which the O. D. T. is conducting. So far as the railways are concerned, however, it is a vitally important part and the O. D. T., in addition to presenting the railways' needs before the W. P. B., also plays an important role in getting things done that would not be possible for the railways individually to accomplish. Examples of this are supplied in O. D. T. orders No. 1 and No. 18, both of which are aimed toward the conservation of cars and indirectly but importantly at saving locomotives by enabling the handling of the increase in ton-miles without an equivalent increase in the number of locomotives required.

Order No. 1 requires specified minimum tonnages for merchandise cars and Order No. 18 accomplishes the same result so far as carload traffic is concerned. It may be said that they have been successful to a certain extent and certainly helpful in the efficient handling of wartime traffic, but the apparent saving in cars as a result of these orders does not tell the whole story. In evaluating the benefits, other factors developing from compliance with these orders that cut down the saving, must be taken into account. These include increased empty movement of cars; cars made empty at points where there is no immediate need for them; car-days wasted in filling out cars to the required minimum weights; additional car-days required for unloading more tightly packed lading; changes in destinations and other factors requiring increased handling during a period of dwindling manpower supply. It takes longer to load and unload cars that are packed to the roof; the extension of the stop-off principle uses up more car-days and increases car-miles, and increased switching results from the stop-off and consolidation privileges under Order No. 18. These objections are valid and are realized by the O. D. T. However, it is considered that the benefits of increased locomotive utilization more than offset the decrease in car efficiency.

Pooling Refrigerator Cars

The O. D. T. has also contributed toward freight operating efficiency by promoting the pooling of refrigerator cars in co-operation with the Interstate Commerce Commission and the Association of American Railroads. At the request of O. D. T., the manager of the Refrigerator Car section of the Car Service division of the A. A. R. was appointed an agent of the I. C. C. and vested with authority to control the movement of refrigerator cars. The manager of the refrigerator-car pool is assisted by an advisory committee, which includes a representative of O. D. T.

Operations of the refrigerator-car pool have effected the elimination of a large amount of cross-hauling of such cars in certain sections of the country. The O. D. T. has estimated that in the last four months of 1942 there was a saving of approximately 45,000,000 empty refrigerator car-miles, mostly as a result of the pool operations. Some progress toward the reduction of the empty westbound transcontinental movement has been made through I. C. C. service orders permitting carriers to furnish up to three refrigerator cars for transportation to the Far West of a carload lot that would normally be carried in a single box car. In addition, the O. D. T. has been issuing special permits for the carriage of westbound shipments of L. C. L. freight in refrigerator cars in loads of less than the 10 tons prescribed by General Order No. 1. In periods of refrigerator-car shortages, the pool mechanism has been used to restrict the use of such cars for transportation of certain goods and to set up preferences covering their use for the transportation of certain other commodities.

Diverting Oil

The activities of the O. D. T. have been so numerous and have affected almost every department of railway transportation to such an extent that it would take a volume larger than this one to describe them in detail. Close attention is paid to all vital movements; the action that is being taken with regard to the oil movement will serve as an example. This movement is followed from the refineries to the consuming points and the return

The Transportation Corps of the United States Army Is Co-Operating to Insure Fast and Efficient Movement of War Materials

movement of empty tank cars is checked in a similar manner. The actual handling of the trains of loaded and empty tank cars is supervised by the associate director of the Western region of the O. D. T.

The train movements are reported to him currently under a system of symbol numbers as follows: "G" is used for the going movement of loads, "R" for empty tank returning; each route has a symbol number and a further number indicates the day of shipment. For example, a train of oil loaded at Houston, Texas, on May 1, destined Bayonne, N. J., would be designated

(*Continued on page 1029*)

Railways Make Amazing Records

Handle an unprecedented volume of freight by almost unbelievable improvements in operating efficiency

THE railways individually and as a whole have established innumerable new records during the last year. Their achievements are all the more noteworthy because they have been made with such a small increase in equipment. The amazing utilization of railway plant and rolling stock that has been brought about is indicated in the accompanying survey of the accomplishments of individual railways. However, rolling stock does not last forever, and the equipment situation is such that when cold weather sets in again a very bad situation is to be expected unless drastic remedial steps are taken between now and then.

On April 1, 1943, Class I railways had 586 new locomotives on order, as compared with 930 at the same time in 1942. These included 392 steam locomotives, 12 electric locomotives and 182 Diesel-electric locomotives, as compared with 426 steam and 504 electric and Diesel-electric locomotives on order on April 1, 1942. Likewise, in the first quarter of 1943, 159 new locomotives were put in service, as compared with 179 in the first quarter of 1942. Of those installed this year, 125 were steam, 6 electric and 28 Diesel-electric.

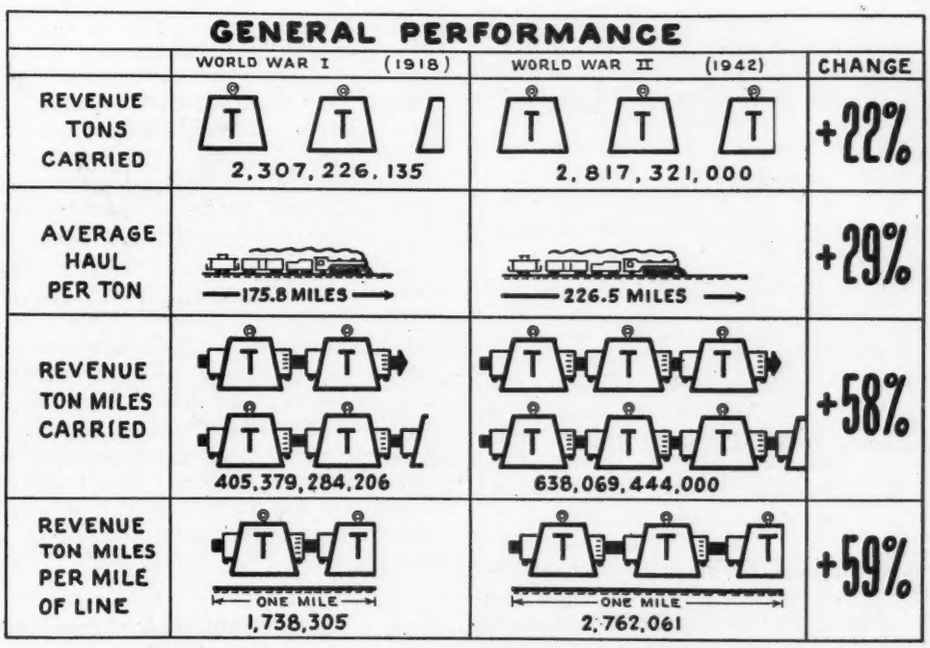
On April 1, 1943, the Class I railways had 20,712 new freight cars on order, the construction of which had been authorized by the War Production Board. On the same date in 1942, they had 69,515 on order. In view of the threatening tightness that is now developing in box cars, it is interesting to observe that the new freight cars included in the authorization noted above consist of 11,605 hopper cars, 7,459 gondolas, 1,645 flat cars and 3 box cars. Furthermore, in the first quarter of 1943, Class I railways put 4,657 new freight cars in service, as compared with 27,263 in the same period last year. Those installed in the first quarter of 1943 included 1,662 hopper cars, 2,008 gondola cars, 801 flat cars, 135 automobile box cars, 24 plain box cars, and 27 miscellaneous freight cars.

Greater Utilization

This parsimonious allotment of new rolling stock and particularly of freight cars was foreseen to a certain extent a year ago, and special efforts were made to prevent reduction in capacity resulting from the receipt of less equipment than was being removed from service through ordinary wear and tear. Heavier loading of freight cars supplies an outstanding example of this.

In 1942, carload freight was loaded to an average of 40.1 tons per car. This established a new loading record for the fourth consecutive year, but in 1942 the increase over 1941 amounted to more than the aggregate gain in the preceding three years. For the first time on record the loading exceeded 40 tons per car. Each separate commodity group set in a new high record.

This accomplishment was due largely to the effects of the countrywide program in which shippers and receivers united to produce maximum efficiency in the loading of cars. General Order O. D. T. No. 18, in effect in the last two months of 1942, caused a sharp increase in the loading of many individual commodities, but was not in effect long enough to affect the general average greatly, although the order was undoubtedly responsible for bringing the average up over 40 tons. The importance of this heavier loading is graphically il-



lustrated by the fact that, if the 1942 tonnage had been loaded to the 1941 average, 1,778,391 more cars would have been loaded, or an average of nearly 6,000 additional cars every working day of the year.

Individual Railway Performances

The figures referring to the railways as a whole are sufficiently amazing. However, the individual railways have also established remarkable records, often under the most trying circumstances. Of course, the traffic is not evenly distributed throughout the country and there are peaks and valleys in any traffic channel graph; nonetheless there is nothing to indicate that railways anywhere have important surpluses of transportation capacity.

Alton

The following statistics show the record operations in 1942:

	1942	1941
Train miles	3,353,711	2,648,641
Loaded car miles	88,145,000	63,589,000
Net ton miles	2,334,194,000	1,633,288,000
Net ton miles per train mile	756	619
Average tons per car	28.7	25.5
Miles per car per day	50.4	38.6

Atchison, Topeka & Santa Fe

In addition to military traffic, bumper crops were the rule rather than the exception along the lines of the Santa Fe in 1942. Thus Santa Fe traffic was vastly increased for many reasons. Freight loads in 1942 totaled 1,754,862 cars, an increase of 13.8 per cent, while revenue ton miles totaled 28,111,449,000, an increase of 49.7 per cent over the previous record, established in 1941. Other increases recorded in 1942 over 1941 were as follows:

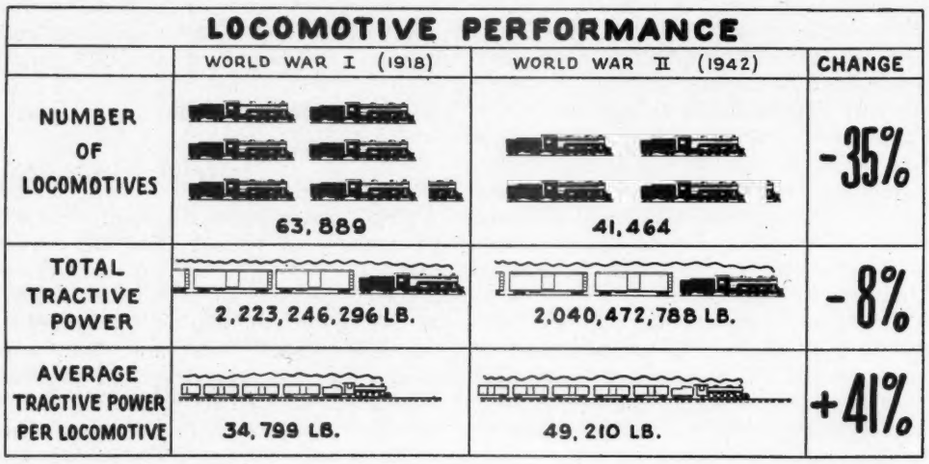
	1942	1941
Tons of revenue freight	51,036,292	38,907,016
Average haul per ton (miles)	550.8	482.7
Average load per car (tons)	26.4	22.8
Tons per freight train mile	820.2	680.9

Atlanta & St. Andrews Bay

In the fall of 1941, traffic doubled practically overnight and has continued at this rate since. Panama City, Fla., local on the Bay Line, increased from 13,000 to 40,000 inhabitants in 12 months; while paper, pulpwood and petroleum products formerly handled by water are now moving all-rail via the Bay Line. In the fall of 1942, the Army took two of the Bay Line's three Diesel-electric road locomotives, but despite these handicaps, the road has continued to move traffic currently.

Atlantic Coast Line

Freight traffic in 1942 was the heaviest on record and revenue ton-miles exceeded the previous record, established in 1926, by 66 per cent. Gross tons per train in December, 1942, exceeded those for December, 1941, by 21.3 per cent. The A. C. L. is handling large quantities of traffic that formerly moved from Central American, Cuban and other ports to eastern destinations by boat, as well as much traffic formerly hauled by coastwise steamers. Among these commodities are raw and refined sugar, bananas, ore, construction materials, citrus fruit and phosphate rock. During 1942, 88.4 per cent of the phosphate rock was handled all-rail, as compared with only 46.3 per cent in 1941.



Baltimore & Ohio

The volume of traffic, expressed in gross ton-miles (exclusive of locomotives and tenders), handled in 1942 was 28 per cent larger than in 1929. The gross train load was increased 18 per cent and the revenue train load increased 22 per cent while freight train mileage increased only 8 per cent. This traffic was handled with 17 per cent less tractive effort than was available in 1929. The average miles per serviceable car day were 31 per cent higher in 1942 than in 1929.

Bangor & Aroostook

Revenue ton-miles in 1942 totaled 274,581,000, as compared with 255,653,000 for the previous year. This increase was largely accounted for in the increased movements of products of agriculture and products of forests. The former increased from 616,415 tons to 760,814 tons; the latter increased from 323,641 tons to 387,949 tons.

Belt Ry. of Chicago

This line handled 2,206,959 freight cars through its Chicago terminals in 1942, an increase of 261,505 cars, or 13 per cent, over 1941 and 549,331 cars, or 33 per

cent, over 1940. Perishable freight handled in 1942 amounted to 94,084 cars, an increase of 8,180, or 9.5 per cent, as compared with 1941, and an all-time record. Live stock handled in 1942 amounted to 5,126 cars, an increase of 1,752 cars, or 51.9 per cent. Many of the factories in the Clearing industrial district of the Belt were entirely engaged in war production and one of the world's largest airplane engine plants is now being finished on 315 acres of land sold by the Belt to the Defense Plant Corporation.

Bessemer & Lake Erie

The tonnage handled in 1942 increased 5.1 per cent over 1941, establishing a new record. This increased volume, together with an increase in the average speed of trains made possible 81,790 gross ton-miles per train-hour in 1942, the highest for any Class I railway. Net ton-miles per mile of road per day of 38,593 and an average load of 73.6 tons per car were also the highest for any Class I railway.

Boston & Maine

Gross ton-miles per train-hour rose to 33,274 in 1942, an increase of 10.6 per cent over 1941 and of 44.5 per cent over 1932. Net tons per loaded car increased 24.3 per cent to 28.1 tons; or 47.1 per cent more than in 1932. Net ton-miles per car day increased 39.7 per cent to 921; or 220 per cent over 1932. The daily average number of freight cars on line decreased 2.6 per cent while the net ton-miles increased 36.4 per cent. The B. & M. is now handling oil at the rate of 120,000 carloads a year.

Other unusual all-rail movements are coal, raw sugar and cotton.

Central of Georgia

In 1942, the Central of Georgia hauled 12,435,263 revenue tons as compared with 10,460,149 in 1941, an increase of 19 per cent in tonnage, with an increase in freight train-mileage of only 3 per cent. The increased average load per car (from 24.18 tons in 1941 to 27.96 tons in 1942) made possible much of this. Revenue ton-miles increased from 1,843,771,982 in 1941 to 2,193,738,008 in 1942.

Chesapeake & Ohio

In 1942, the C. & O. broke all previous records for traffic handled. Following are statistics which show what was accomplished:

	1942	1941	Per Cent Increase or Improvement
Total gross ton-miles (1,000)	53,281,810	47,483,694	12.2
Revenue tons carried one mile (1,000)	25,555,739	22,549,791	13.3
Net ton-miles per freight car day	1,359	1,164	16.8
Net ton-miles per mile of road per day	24,159	21,371	13.0
Net ton-miles per loaded car mile	47.6	45.5	4.6
Miles per serviceable freight locomotive per day	102.2	97.0	5.4
Tons of coal dumped at Presque Isle, Ohio	15,654,717	14,819,141	5.6
Car miles per serviceable freight car day	51.6	45.0	14.7
Total gross ton-miles handled per man hour (all employees)	862	846	1.0

Considering the large number of new employees, a decrease in reportable injuries to employees on duty per million man-hours from 4.41 in 1941, to 4.25 in 1942, represents an outstanding performance.

Chicago & Eastern Illinois

The C. & E. I. showed the following percentage increases in 1942, as compared with 1941:

	Per Cent Increase
Revenue ton-miles	32.9
Freight traffic density	33.6
Total operating revenues	28.3
Tons of revenue bituminous coal	15.2
Other freight traffic	26.1

Chicago & North Western

The iron ore traffic on the C. & N. W. in 1942 amounting to 11,957,000 net tons, was an increase of 20.2 per cent over 1941. The total freight traffic, other than iron ore, for 1942 exceeded that of the preceding year by 7,304,898 tons or 19 per cent. The only commodities showing a decrease during the year were petroleum and products, automobiles, trucks and parts, tires and L. C. L. traffic.

Chicago, Burlington & Quincy

Perhaps the most notable records made in moving freight on the Burlington, are those in connection with the development of military camps, ammunition storage, air fields, etc. One such project, located in country removed from normal facilities and with no organized local forces, involved an inbound movement of more than 15,000 cars of construction materials within 60 days, with as many as 567 cars in a single day. Regardless of the fact that much of the material was moved over a 3 per cent grade and 4 deg. curves and all of it over at least a 2 per cent grade, the performance was such as to receive commendation from the Army engineers in charge. Among other things on this job, the Burlington converted conventional hopper cars into covered hopper cars on short notice to move cement, in order to save manpower for the Army contractor. This road is also handling unusually heavy movements of oil and petroleum products and grain.

Chicago Great Western

Close supervision of all freight schedules has resulted in such schedules being maintained consistently on the C. G. W., despite increased traffic. In addition to troop movements, which receive first attention, this railway has been called upon to handle a considerable volume of oil and iron ore.

Chicago, Milwaukee, St. Paul & Pacific

Last fall, the Milwaukee handled 19 per cent more net revenue ton-miles than during the previous peak of 1928. In January, 1943, under severe weather conditions, it handled 40 per cent more net ton-miles than in January, 1928, and 8 per cent more than in January, 1942. This performance was accomplished with a lesser number of locomotives and cars than were owned in 1928. In October, 1942, new high records were set in average tons per train, gross tons per train-hour, miles per locomotive-day and miles per car-day.

Chicago, Rock Island & Pacific

The most conspicuous movement on the Rock Island is the greatly expanded oil traffic—and returning the empty tank cars to the fields for further loading. The heavy movement of wheat from terminal elevators to

interior mills for processing into a type of flour that is used in the production of alcohol and for feeding purposes is being handled without interference with the movement of war traffic and other civilian commerce. Vast quantities of livestock have moved in the last 12 months, for range conditions in the Southwest were unusually good last year, and the movement this year has been much influenced by the desire to avoid overgrazing on the dry wheat pastures. Construction materials for government projects, particularly for the numerous air fields have also increased traffic materially.

Delaware & Hudson

This road increased the miles per car per day from 47.5 during 1941, to 57 in 1942, and, in February, 1943, to 67.2 miles, the highest on record. Net ton miles per car per day were 1,318.6 in 1942, as compared with 955.9 in 1941; in February, 1943, they rose to 1,669. Net tons per train rose from 1,177 in 1941 to 1,435 in February, 1943. The operating expense per 1,000 gross ton miles for 1942 was $1.29, the lowest on record.

Delaware, Lackawanna & Western

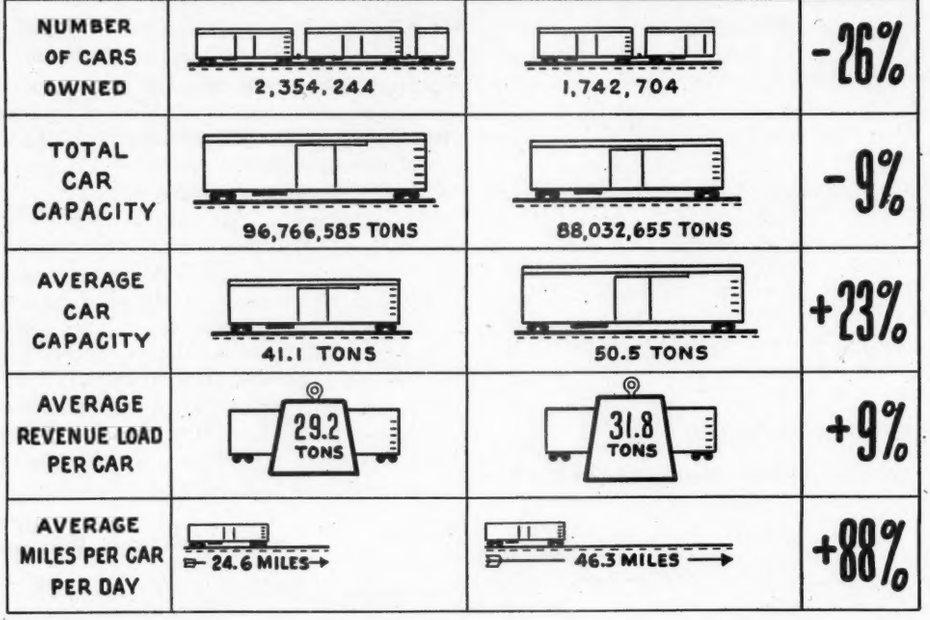
The Lackawanna is not so situated as to feel the impact of wartime traffic as much as most roads. The principal commodity handled is anthracite coal. In 1923, this movement amounted to over 12,000,000 tons, providing 28.6 per cent of the gross revenue, and in 1942 to less than 7,000,000 tons, or only 16 per cent of the gross revenue. The net railway operating income for 1942 supplied earnings of only 3.63 per cent on the investment in road and equipment.

Denver & Rio Grande Western

Gross ton miles in 1942 totaled 11 billion, twice the volume handled in 1929, and establishing a new all-time high in the 72-year history of the railway. In addition to transcontinental and other war traffic, the Rio Grande is transporting millions of tons of coal for on and off-line war production industries. When a huge new steel plant now building goes into production, the Rio Grande will also be called upon to handle a heavy tonnage of iron ore.

Elgin, Joliet & Eastern

In 1942, 57,860 more revenue cars were handled than in 1941; revenue tons handled increased 4,014,808; revenue ton-miles were 377,054,337 greater, and this increase was handled with an addition of only 185,936 revenue train miles, and of 4,670,393 loaded car miles. This record was brought about by increasing the percentage of loaded to empty car miles (empty car miles showed a decrease of 4,670,393), by increasing the average load per loaded car by 1.44 tons, and by an increase in the average haul of 2.76 miles, the latter being an important factor on a terminal railway.



Erie

In handling the largest traffic in its history, the Erie made the following records in 1942, as compared with 1941:

	Per Cent Increase
Gross ton-miles per train mile	5.5
Gross ton-miles per train hour	3.7
Gross ton-miles per locomotive mile	4.5
Net ton-miles per train mile	14.5
Net ton-miles per car day	16.0
Car miles per car day	4.1

The Erie is playing a large role in the handling of petroleum and petroleum products to the Eastern seaboard.

Great Northern

Freight traffic in 1942 was 65 per cent heavier than in 1929, and was handled with 300 fewer locomotives and 5,000 fewer freight cars. The 1942 grain movement of 171,000,000 bushels, compared with 152,000,-

000 bushels in 1941, has been exceeded in only one previous year. There were 28,717,689 long tons of iron ore shipped from the railway's ore docks, or 3,233,604 long tons more than in 1941, which was the previous record year. Nearly 3,750,000 tons of lumber were handled, or more than in any previous year. Petroleum production in the north central Montana oil fields increased 10 per cent, to 7,500,000 barrels.

Gulf, Mobile & Ohio

The 8,755,384,000 gross ton miles handled in 1942 were 43.98 per cent more than were handled in the previous peak year (1928) of the predecessor companies combined, yet freight train miles decreased 1.86 per cent and the traffic was handled with 50 per cent fewer locomotives.

Furthermore the major portion of the 1942 traffic was of an emergency nature, and included 48,230 cars of petroleum and petroleum products.

Illinois Central

Although the 1942 freight performance—52,871,589,000 gross ton miles was 45.2 per cent greater than in 1941, and 27 per cent over 1929, it was handled with an increase of only 21.9 per cent in freight train miles, compared with 1941, and with a decrease of 7.9 per cent in freight train miles, compared with 1929. The average tonnage per train in 1942 reached an all-time record of 2,461, an increase of 19.3 per cent over 1941, the previous peak, and of 40.2 per cent over 1929. The net train load in 1942 averaged 1,112 tons, compared with 888 tons in 1941. The average freight train in 1942 was made up of 57 cars, compared with 49 in 1941. The average miles per car per day were 63.1 in 1942, compared with 50.4 in 1941 and the average car load was 32.3 tons, compared with 28.4 tons, while ton miles per car per day were 1,225, compared with 901. All this was accomplished with 5 fewer locomotives and 195 fewer freight cars.

Kansas City Southern-Louisiana & Arkansas

The following statistics deal with the L. & A. only, but they are typical of what is occurring on this system as a whole:

	1942	1941
Revenue train miles	1,436,720	1,265,867
Car miles	58,332,152	50,390,187
Tons of revenue freight	10,385,422	7,349,074
Revenue ton-miles	1,160,860,709	954,641,525
Revenue ton-miles per mile of road	1,326,349	1,083,736

Lehigh & Hudson River

The effect of war-time transportation on this 96-mile line has been to increase the number of train movements more than 100 per cent upon occasion, and to increase the cars handled more than 278 per cent. One of the causes of this increase has been the participation of the L. & H. R. as part of one of the important through all-rail routes for bituminous coal to New England. The following statement takes the averages for August, 1941, as typical of the normal pre-war movement, and uses the peak day in the last year for comparison:

	Through Trains	Total Trains	Cars		
			Loads	Empties	Total
August, 1941	14.3	20.8	346	160	506
Peak Day	30	44	1,180	730	1,910
Per Cent Increase	110	111	241	356	278

Lehigh Valley

Tons of revenue freight per train mile were 47.7 per cent greater and ton miles of revenue freight were more than 51 per cent greater in 1942 than in 1918. The Lehigh Valley handled an average of 14,062 cars of oil and petroleum products per month in 1942, as compared with 2,121 cars per month in former years. Since January 1, 1943, this oil movement has risen to an average of 15,525 cars monthly.

Louisville & Nashville

A number of new records were established in 1942, of which the more important were:

Tons of freight	71,021,454
Revenue net ton miles	15,971,344,037
Gross tons per train	1,796
Net tons per train	889
Operating ratio	58.7 per cent

The best previous records for most of these items were made in 1926. In 1942, the L. & N. handled 12 per cent more revenue tons and 20 per cent more revenue ton miles than in 1926, with 20 per cent less freight locomotives, 12 per cent less freight cars and 20 per cent less freight cars on line. Freight locomotive miles decreased 11 per cent and freight train miles 13 per cent, while freight car miles increased only 5 per cent.

Minneapolis & St. Louis

Traffic continued to increase during the year, but at a more rapid rate, as follows:

	% Increase 1942 over 1941
Tons of revenue freight	31
Ton miles of revenue freight	25
Tons of revenue freight per mile of road	31
Revenue carloads originated	28
Products of agriculture	14
Products of mines	63
Soft coal	90

Minneapolis, St. Paul & Sault Ste. Marie

The Soo Line has been able to increase both train tonnage and train speeds, notwithstanding interference from added sections of regular trains and extra trains operated to handle increased traffic. The principal increases have been in the movement of forest products, grain, coal and iron ore. The ore movement for 1943 is expected to be the greatest in the Soo Line's history.

Missouri-Kansas-Texas

The Katy handled 525,542 cars of freight in 1942, as compared with 412,478 cars in 1941, an increase of 113,064 cars. Outstanding among the increases in individual commodities was that of crude and fuel oil handled which rose from 9,252 cars in 1941 to 34,393 cars in 1942. A decrease of 1,008 cars in wheat loading was more than made up by an increase of 3,406 in cars of all other grains handled. Other large increases were in clay, sand, gravel and stone, 25,299 cars, and in miscellaneous carload freight, 33,838 cars.

Missouri Pacific

The following statistics indicate the improvement in operating efficiency on this road, which serves the heavy traffic territories of the Southwest and also participates largely in transcontinental traffic:

	1942	1941
Train miles	20,938,472	15,449,957

Loaded car miles	656,306,000	472,027,000
Net ton-miles	20,235,484,000	12,488,285,000
Net ton-miles per train mile	963	811
Average load per car	30.7	26.4
Miles per car per day	63	50.9

Nashville, Chattanooga & St. Louis

Numerous records were broken on the N. C. & St. L. in 1942, as shown by the following:

	1942	1941
Tons of freight handled	12,559,710	9,459,792
Tons of revenue freight	11,656,436	8,665,696
Revenue ton-miles	2,193,145,909	1,497,371,056
Tons carried one mile per mile of road	2,059,342	1,418,775
Average tons of freight per freight locomotive mile	542	506
Gross tons per freight train	1,407	1,347
Miles run per road locomotive owned	47,284	38,631

New York Central

With 35 per cent fewer freight cars on line and 30 per cent fewer road freight locomotives, the N. Y. C. moved 35.6 per cent more revenue net ton miles in 1942 than in 1929. With only 1.9 per cent more freight cars and 0.9 per cent more road freight locomotives, this road handled 36.1 per cent more revenue net ton miles in 1942 than in 1941. This was achieved by securing more miles per day from rolling stock, despite a 2.4 per cent decrease in freight train speed.

Although this railway handled 321 per cent more petroleum and products in 1942, the 1943 performance, including the oil from the Norris City, Ill., pipe-line terminus, will be even larger, for in less than three months this year it handled more than twice as much oil as during the entire year 1941.

New York, New Haven & Hartford

Gross ton miles totaled 13,344,653,565 in 1942, the highest for any year on record; an increase of 28.2 per cent over 1941 and of 65.4 per cent over 1918. Gross ton miles per freight train hour, 32,162, were 8.4 per cent over the previous record. Net ton miles per freight train hour averaged 13,665, or 18.4 per cent above the previous high. Freight train load averaged 2,262 tons—8.4 per cent over the previous record, and ton miles per day per serviceable freight car rose to 687. Other highlights of 1942 operations follow:

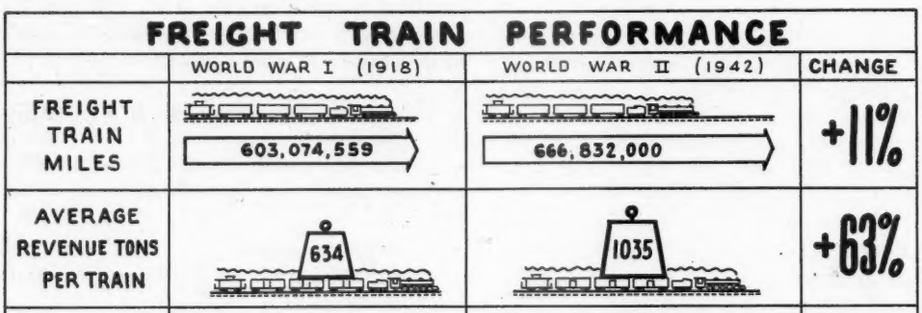
	Per Cent Decrease (1942 Compared with 1918)	Per Cent Decrease
Gross ton miles	65	..
Net ton miles	51	..
Freight train miles	..	25
Freight cars on line	..	45
Freight train load	113	..
Daily freight car mileage	169	..
Freight carried per car per day	179	..
Cars per freight train	98	..

New York, Chicago & St. Louis

Loaded car miles increased from 285,287,000 in 1941 to 376,156,000 in 1942 and net ton-miles from 7,019,700,000 to 10,747,272,000, while train miles increased only from 7,602,048 to 10,161,220. This was accomplished largely by increasing the average net tons per train mile from 924 to 1,057, by increasing the average net tons per loaded car mile from 24.6 to 29.2 and by increasing the miles per car per day from 75 to 87.8.

New York, Ontario & Western

The N. Y. O. & W. has made unusual efforts to move freight expeditously. When floods threatened its effectiveness as a wartime transport agency, effort and money were used unsparingly, to restore to service a 23-mile stretch of line that had been washed out—to a depth of 40 ft. in some places—in 8 days, instead of 8 weeks, which it would have taken in more normal times. In addition to military traffic, this road will handle 400,000 tons of bauxite and 130,000 tons of newsprint paper in 1943.



New York, Susquehanna & Western

The Susquehanna handled 30 per cent more gross ton-miles in 1942 than in 1941. Since July 1, 1942, the line has been handling between 40 and 45 per cent of the coal which has gone through New York harbor from the Pocahontas area for New England. Oil traffic on the Susquehanna has increased 500 per cent.

Norfolk & Western

The N. & W. handled more traffic in 1942 than ever before. Revenue coal originating on line totaled

50,465,593 net tons, nearly 2¼ times the tonnage originated in 1918 and 7.55 per cent more than the 46,923,566 net tons in 1941. The net ton miles of all freight traffic amounted to 19,516,929,000, which was 51.42 per cent more than in 1918 and 9.6 per cent more than in 1941. Net tons per loaded car increased to a record high of 46.6 in 1942, or 2.7 per cent higher than in 1941, while freight car miles per car day established a new record of 49.5 in 1942, as compared with 45.4 in 1941.

Northern Pacific

Prior to 1942, the largest previous business handled was in 1918. A comparison of this year with 1941 and 1942 follows:

	1918	1941	1942	Inc. or Dec. 1942 Over 1918	Inc. or Dec. 1942 Over 1941
Train miles	12,868,554	9,823,595	11,017,386	−14.2	+12.1
Gross tons per train mile	1,619	2,307	2,523	+55.8	+ 9.3
Transportation ratio	36.44	32.23	28.53		

The N. P. is participating largely in transcontinental movements formerly handled by ships through the Panama Canal. The effect of this is shown in the movement of forest products, which amounted to 184,722 cars in 1941 and 231,773 cars in 1942, an increase of 25.4 per cent.

Pennsylvania

The operating ratio of 66.09 per cent in 1942 was the lowest in the history of the company and compares with the 1941 figure of 72.09 per cent. The demands for railroad transportation were on a scale hitherto unknown and the traffic exceeded that of any previous year in the company's history. The total freight train miles amounted to 56,339,786, an increase of 10,093,317 over 1941. Loaded car miles were 2,077,764,549, an increase of 307,404,554. Bituminous coal represented the largest single item of freight traffic, with 90,171,813 tons handled in 1942, or 35 per cent of the total tonnage. This was an increase of 12,031,330 tons over 1941. Total tons of revenue freight carried amounted to 256,332,167, an increase of 36,204,480 tons over 1941. Revenue ton-miles amounted to 67,028,387,312, an increase of 14,932,365,252 miles.

Pere Marquette

Only 1.2 per cent of the freight cars, and only 3.8 per cent of the locomotives owned were undergoing or awaiting heavy repairs at the end of 1942. More revenue ton miles of freight were carried in 1942 than in any year in the history of this railway. The increase amounted to 23.2 per cent over 1941 and to 22.9 per cent over 1929, the highest previous year. Average miles per car per day increased from 41.4 to 50. The average revenue tons carried per freight train increased from 732 in 1941 to 896 in 1942.

Pittsburgh & West Virginia

This road has been handling 75 per cent more ton miles for some months than in the corresponding months of the preceding year, with little additional motive power or other facilities. Much of this increased traffic consists of unusual movements, such as petroleum and products and chrome ore, manganese ore and mercury.

Reading—Central of New Jersey

Both of these roads have increased their tonnage and operating records to all-time peaks. They have participated to a very large degree in the movement of oil via the Marcus Hook, Rutherford, Newberry Junction, Taylor, Allentown and Hampton gateways, as well as in the greatly increased movement of coal to New England. The C. of N. J. has also handled unusually heavy movements of export lighterage freight.

Richmond, Fredericksburg & Potomac

Comparing the last six months of 1942 with the full year of 1940 shows the remarkable increase in traffic handled.

	12 months of 1940	6 months of 1942	% Inc.
Freight train miles	739,210	772,997	4.6
Tons of revenue freight handled	4,563,981	6,204,874	36

This 116-mile line is now handling over 100 trains a day, and has handled 120 trains on certain days.

St. Louis-San Francisco

The year 1942 broke many records, certain of which are indicated below:

	1942	1941
Revenue tons handled	29,093,894	21,361,134
Revenue ton-miles	7,342,686,312	5,124,040,235
Average haul per ton	252.3	239.8
Average tons per train mile	603.8	506.5
Average load per car	26.3	22.4
Total freight train miles	12,159,659	10,115,330
Total freight locomotive miles	13,049,822	10,543,298
Total car miles	470,972,488	371,903,428

St. Louis Southwestern

The fast solid merchandise train, the Blue Streak, was set up some years ago to handle a maximum of 18 cars of L. C. L. freight. During the week ending March 28, 1943, this train handled 72 cars one night and 76 cars on another night. It has been necessary to call on the general office force to assist in handling the freight on numerous occasions.

This line also created new operating records in 1942, as follows:

	1942	1941
Train miles	5,908,748	4,014,675
Loaded car miles	190,406,000	126,140,000
Net ton-miles	5,093,655,000	2,915,953,000
Net ton-miles per train mile	866	726
Average load per car	26.7	23.0
Miles per car per day	96.7	83.1

Seaboard

Statistics below show increases in 1942 over 1938:

Net ton miles	159.2	per cent
Net ton miles per mile of road per day	162.9	"
Locomotive miles per locomotive day	86.2	"
Net ton miles per train mile	40.1	"
Net ton miles per loaded car mile	38.5	"
Net ton miles per freight car day	76.1	"
Average miles per car per day	20.5	"

Southern

With an increase of only 2.75 per cent in total tractive effort of all locomotives available during 1942 over 1939, the Southern handled, without congestion, 75 per cent more gross ton miles. The large increase in certain classes of commodities handled are shown in the following table:

	Cars		Tons	
	1942	1941	1942	1941
Crude petroleum	126,502	653	4,263,826	23,077
Oil and petroleum products	111,363	47,738	3,279,955	1,336,664

Bituminous coal	382,695	335,547	20,483,287	17,644,646
Cotton cloth and fabrics	42,478	31,749	615,048	390,817
Sugar	19,123	14,248	704,716	430,975
Lumber	187,577	171,954	5,270,585	4,535,352

Southern Pacific

All records in the handling of freight traffic were broken in 1942. All sections of the line have been called upon to handle large increases in traffic. Moreover, the freight traffic load of the S. P. consists of an extremely high percentage of freight important to the war effort, such as tanks and guns, steel for shipyards, engines, parts and metals for aircraft plants, salt, sulphur and potash. The S. P. is also handling large quantities of aluminum, magnesium, copper, zinc, talc and tungsten. In addition, particularly on the Texas and Louisiana Lines, a huge movement of gasoline and oil was handled in trainload lots.

Other freight important to the national economy consisted of fruits, vegetables, cattle, sheep, cotton, grain, paper and sugar.

Tennessee Central

This line handled the greatest traffic in its history in 1942, and has served as an important connecting link on through traffic between Knoxville, Tenn., and Nashville, in supplying additional railway capacity in the Southeast, where it is needed for wartime transportation.

Terminal R. R. Association of St. Louis

Between July 21, 1942, and April 18, 1943, the Terminal handled 308,071 loaded and 325,775 empty tank cars. During the first 18 days of April, loaded tank cars were handled in interchange between railways over the Western and Eastern banks of the Mississippi in an average time of 2 hr. 56 min. per car; empty tank cars were interchanged in an average of only 5 hr. 10 min. In 1942, 1,713,982 loaded freight cars were handled, or 35 per cent more than in 1941 and 3 per cent more than in 1929, the previous peak year. Between January 1 and April 21, 1943, the number of loads handled increased 11 per cent as compared with 1942.

Texas & Pacific

While handling transcontinental traffic and serving numerous military establishments in Texas and Louisiana, this line made the following records last year:

	1942	1941
Train miles	4,474,765	3,535,207
Loaded car miles	137,409,000	117,850,000
Net ton-miles	3,606,561,000	2,705,252,000
Net ton miles per train mile	811	767
Average load per car	26.2	22.9
Miles per car per day	68.5	63.5

Union Pacific

Total freight-train miles increased 5.6 per cent, from 30,584,657 in 1941, to 32,290,977 in 1942, while revenue ton miles increased 45.1 per cent, from 18,738,920,553 in 1941, to 27,185,067,113 in 1942. Other pertinent freight statistics follow:

	1942	1941	% Increase
Tons of revenue freight carried	45,568,297	33,824,223	34.7
Loaded freight-car miles	1,115,672,079	937,110,826	19.1
Average distance per ton (miles)	596.5	554.0	7.7
Average net tons per freight-train mile	961.1	718.3	33.8
Average tons per loaded car mile	27.8	23.4	18.7

Wabash

Revenue ton-miles produced in 1942 amounted to 8,504,617,303, as compared with 5,598,957,391 in 1941, an increase of 51.9 per cent, which was carried with an increase in freight train miles of only 20.5 per cent. The number of tons carried one mile per mile of road increased 52.8 per cent and the number of tons per train mile increased from 729 in 1941 to 962 in 1942. Meanwhile, the average tons per loaded car increased from 21.4 to 26.8 and the average haul per ton from 254.5 miles to 293.8 miles.

Western Maryland

The following table shows the performance of trains during 1942, as compared with the average freight train performance in the Central-Eastern region:

AVERAGES PER TRAIN MILE
(Excluding light trains

	Total freight carrying car-miles	Gross ton-miles, Excluding Locomotives and tenders	Net ton miles
Western Maryland	62.8	3,112	1,666
Central-Eastern Region	56.6	2,551	1,233

Loads received from connections rose from an average of 850 cars per day in 1929 and 452 cars in 1932 to an all-time peak of 2,540 on March 22, 1943. Cars loaded on line and received from connections rose from an average of 1,465 per day in 1929 and 842 cars in 1932 to 2,700 cars per day since January 1, 1943. On the line between Hagerstown and Lurgan, 31 miles, as many as 63 trains per day are being handled.

Western Pacific

From an average of 399,000,000 gross ton miles monthly only four years ago, the transportation production of this railway increased to an average of 813,000,00 in 1942. From a peak month of 610,000,000 gross ton-miles in 1938, the 1942 peak month of October jumped to 1,041,000,000. In these four years, freight traffic has increased more than 100 per cent. The total gross ton-miles in 1938 were 4,787,000,000, as compared with 9,759,000,000 in 1942.

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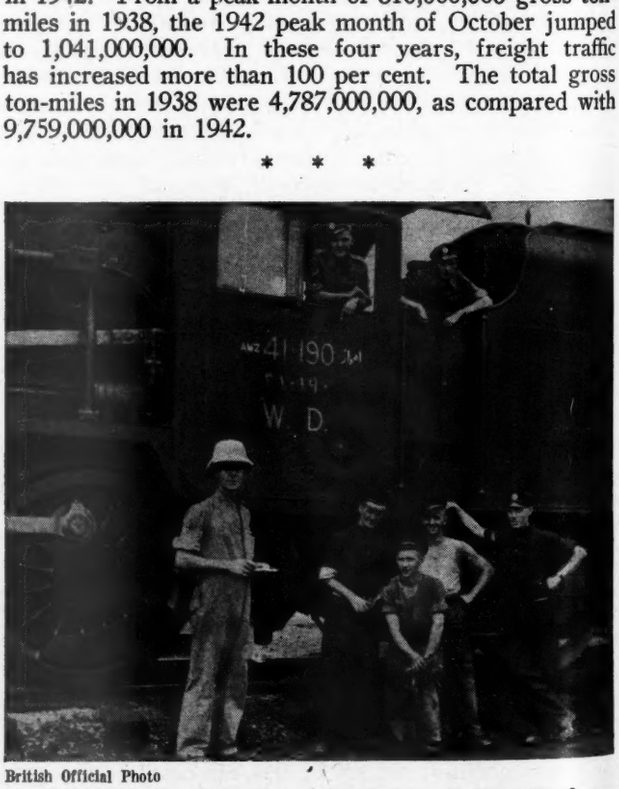


British Official Photo

British Railwaymen Operating British Rolling Stock in Iran, Conveying War Materials to Russia

Freight Car Conditions Are Tight and Cause Some Concern

Generally adequate supply must be supplemented by promised new cars and maximum use of those already in service if serious shortages are to be avoided

"The volume of new freight car equipment which we have any reason to anticipate will be installed is so small as to represent really nothing more than a partial replacement of those cars which will be destroyed or which will have to be dismantled because they are no longer fit to run. We have been deferring equipment retirements seriously during the past two years when retirements have been far below normal. This means that cars have been kept in service which are not economical to run but which had to be kept going because replacements were not available. We cannot keep them running forever."—L. M. Betts.

IS THE prospective freight car supply for the balance of 1943 likely to be adequate? Most responsible railway officers believe that in general it is, although some shortages of open-top and flat cars are anticipated in isolated instances. Increasing concern is being felt, however, owing to the failure of the railroads to receive announced minimum requirements of new cars, and serious transportation shortages can be avoided only if railroads and shippers alike redouble their efforts to secure still more efficient use of the freight equipment now in service.

How are traffic changes affecting the trend in demand for various types of cars? There is an unusual demand for flat cars and for large low-side gondolas for transporting armored tanks, trucks and military equipment in general for the armed forces. The heavy movement of oil to the eastern seaboard has made it necessary to put into service every available tank car and the conversion of many plants from oil to coal burning has increased the demand for cars to move coal. Box and gondola cars in unusually large numbers are required for the exceptionally heavy lumber traffic in some territories. Covered hoppers are needed in increasing numbers for handling bulk cement and other similar commodities; also 50-ft. box cars with and without end doors for transporting war materials, more particularly airplane parts.

Record Reduction in Bad Order Cars

By what means has the all-time low in bad-order freight cars been accomplished? The record reduction in bad-order cars from 3.2 per cent on April 1, 1942, to 2.3 per cent on April 1, 1943, must be credited to increased carrier earnings and efficiency which have provided funds and action of unprecedented celerity for the immediate repair and reconditioning of cars with a minimum of delay at car shops and repair tracks. Energetic supervision looking toward the prompt movement of bad-order cars to repair points has saved many cardays, and well coordinated operating, mechanical, purchasing and stores operations have contributed much to making repair materials available when and where needed so as to avoid delays caused by material shortages.

Has the reduction in bad orders been accompanied by deterioration in the physical condition of cars? To some extent at least, the answer must be in the affirmative, particularly in the case of older cars which comprise a great majority of present railway equipment. Some of the cars, which were put back in service when the war started, were between 25 and 30 years old and it is estimated that about two-thirds of present equipment, or over one million freight cars, are 16 years old or more. Such cars generally need heavy repairs and the demand for equipment is such that railroads have not been undertaking heavy car-repair programs to anywhere near the extent which they would in normal times.

Maintenance Grows More Difficult

Offsetting this to a certain degree is the large volume of current repairs made to keep cars in running order and to fit them for higher-class commodity loading. If car maintenance operations are to be maintained at even their present level, to say nothing of being stepped up, something must be done about the increasingly difficult problem of finding replacements for car-repair forces, depleted by the transfer of men to military and other industrial services.

What influence is severe war service going to have on post-war freight car developments? Regarding this question, the thought is that much will depend upon post-war political, economic and financial conditions. Undoubtedly a large volume of equipment will have reached the limit of its economic life by the end of the war and should be retired and replaced by modern lightweight car if adequate means can be found to finance this improvement. New materials, better design and more efficient fabricating methods, in many cases learned by car builders on the exacting war contract work now being done, are a definitely hopeful prospect.

The question of whether railway freight equipment will continue to be adequate to meet the requirements in handling war and civilian traffic during the coming months must involve consideration of a number of factors, including the amount of traffic involved, the number of freight cars available to move it, the efficiency of car use, and the effectiveness of railway car inspection and repair operations. The shippers advisory boards

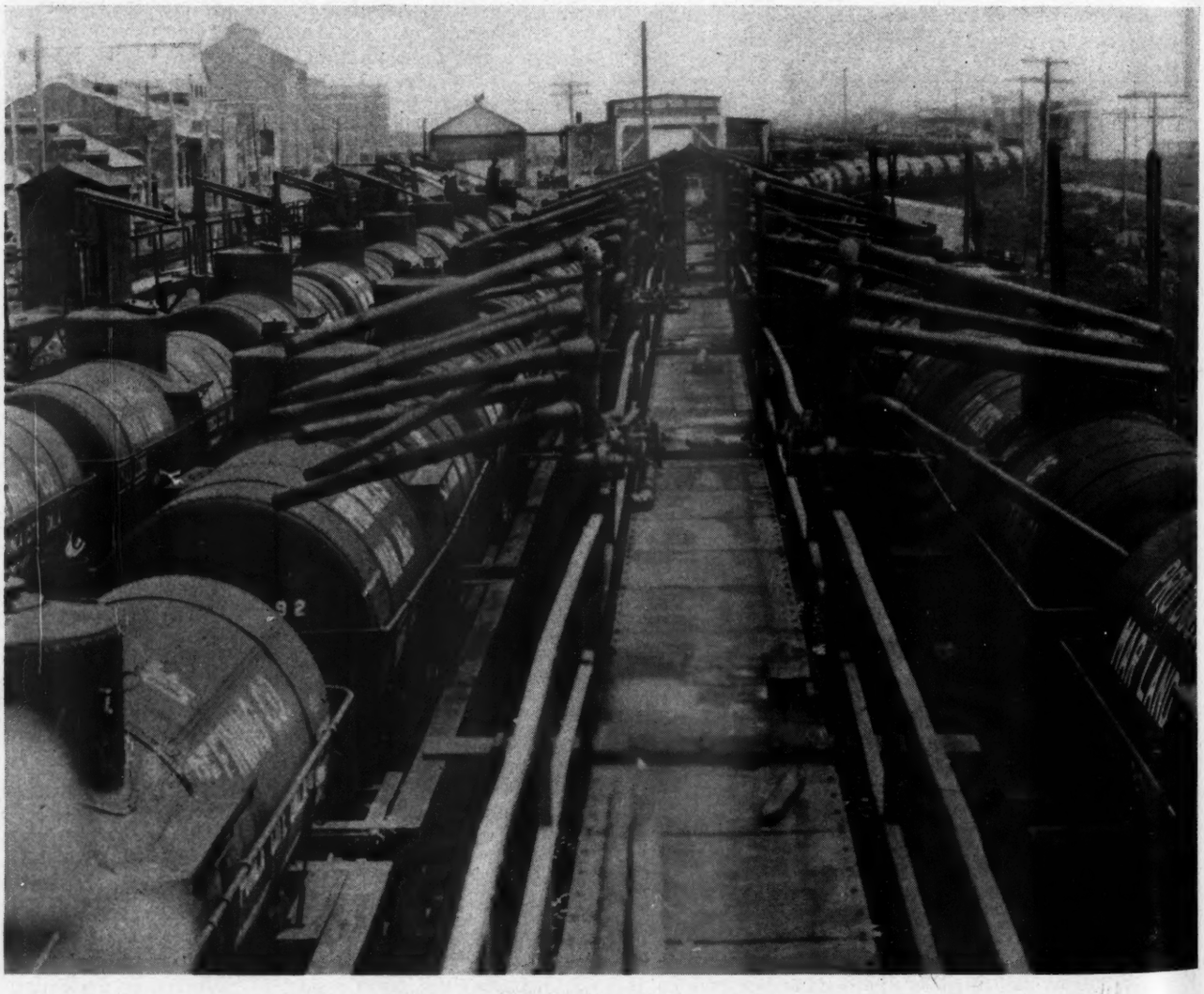
forecast an increase of 3.4 per cent in car loadings in the first quarter of 1943 as compared with the first quarter of 1942, whereas there was an actual increase of only 215,860 full carload loadings, or about 2.6 per cent, due largely to the effectiveness of the heavier loading campaign in reducing individual car requirements. This is clearly shown in one of the accompanying tables. The national forecast for the second quarter of this year is 9,170,439 carloads or 2.5 per cent more than in the second quarter of 1942.

Limited Amount of New Equipment Installed

The amount of new equipment available to help carry this traffic is definitely limited and substantially less than minimum requirements officially set up late last year. Class I roads put 4,657 new freight cars in service in the first three months of 1943, including 1,662 hopper, 2,008 gondola, 801 flat, 135 auto box, 24 plain box and 27 miscellaneous freight cars. Last year, 27,263 new cars were placed in service in the same period. On April 1, 1943, Class I railroads had 20,712 new freight cars on order and authorized by the War Production Board, including 11,605 hopper, 7,459 gondola, 1,645 flat and 3 plain box cars. On the same date last year, a total of 69,515 cars were on order.

Estimated requirements for new equipment are developed by the railroads in conjunction with the Office of Defense Transportation which submits them to the War Production Board for approval and release of the necessary structural materials. Recently the O. D. T. was given the status of a claimant agency for these essential materials instead of being required to work through the Division of Civilian Supply, and the W. P. B. now receives at first hand a complete and forceful picture of the transportation problem as influenced by new equipment requirements. Up to date, however, this has not been effective in getting the railroads badly needed new cars.

The present situation of the railroads with respect to new freight cars may be summarized briefly as follows: Of the 20,000 new cars allocated for construction during the first half of 1943, less than 25 per cent have been actually placed in service which would indicate that the schedule has fallen at least 1½ months behind, or probably 5,000 cars less than it should have been by the end of April. As of the date this article is written, no allotment has been made for the last six months of this year or for the first six months of 1944. The prospects of getting appreciable numbers of new freight cars delivered much before the fall, therefore, are slight, since considerable time is required to get materials actually on the ground and proceed with car construction programs, even after new equipment has been duly authorized and



The Loading Rack at an Oklahoma Refinery

materials released by the War Production Board.

The 20,000 new cars officially allotted to the railroads for the first six months of 1942 include 18,000 gondolas and hoppers, 2,000 flat cars and practically no box cars. The railroads have asked for 15,000 box cars for the year ending June 30, 1944, but present indications are that the best that can be hoped for will be about 6,000. The railroads also asked for 25,000 open-top cars, hoppers and gondolas, and 2,000 flat cars. Of these, apparently only about 13,500 hoppers and 600 flat cars will be released.

Specific Types of Freight Cars Required

Referring again to the table of first quarter loadings, the growing demand for specific types of cars will be apparent. In order to make an accurate comparison, box cars loaded with l. c.. l. freight are eliminated from the final figures, since O. D. T. General Order 1 and subsequently Order 18 were effective in bringing about substantially heavier car loadings and a marked reduction in l. c. l. business. It will be observed that, of the increase of 215,800 carloadings in the first quarter of 1943, open-top cars accounted for 121,164 of this total. Coal loading showed the largest increase and the demand for hopper cars is becoming acute in some territories.

An unusual grain movement during the first quarter of 1943, undoubtedly accounted for the rather acute demand for box cars during that period, although the net balance of the box-car situation shows a reduction in demand as compared with the first quarter of last year.

Just what is ahead with respect to demands for box, coal, tank cars and other equipment was recently pointed out in an address presented before the April 8 meeting of the Midwest Shippers Advisory Board by L. M. Betts, manager, A. A. R., Car Service Division, who said there is a prospect this summer of heavy movements of wheat from the Southwest, which is always the biggest transportation problem during June, July, August and September. With more room in the elevators than a year ago, there will be a much larger movement from the country to the terminals. In the mean time, the Commodity Credit Corporation is moving a great volume of wheat from country points of storage, from terminal points and other locations into consumption. In addition, there is a heavy movement of both wheat and coal to distillers for the manufacture of commercial alcohol going into the war program. This movement is greater than ever before. The millers, corn products manufacturers and soy bean processors are practically all working around the clock, seven days a week, and are consuming a tremendous volume of grain.

High-grade box cars are required for this commodity, but some heavy freight movements can be made in medium-class and rough-freight cars. About 100 car loads of kerosene a day are being moved into New England and many hundreds of car loads of high-octane gasoline, oil and other petroleum products in drums and cans, both from the Southwest and from points where these commodities are transferred from tank cars into box cars.

Mr. Betts said that some elevators have recently been closed in the West in connection with the exceptionally heavy country movement of grain, something which has not happened before at this time of the year for at least two decades. Even more cars of grain and grain products were loaded during the recent winter months than during the peak movement of last summer.

Coal production last year reached 580 million tons which will probably be increased to 600 million tons this year. New England's requirements have increased from 23 million tons in 1941 to 30 million tons in 1942 and 35 million tons will probably be required this year, in addition to an unprecedented movement of oil into that territory. Some severe suffering occurred in New England last winter on account of the fuel shortage, particularly of oil, although the movement of coal and oil into that territory greatly exceeded previous annual shipments. Coal was moved not only directly by rail but also through the port of New York where it was loaded on barges and then by water up Long Island Sound. Canada is expected to take 5 million more tons of coal from the United States this year than last, owing to the curtailment of coal formerly supplied from England. The railroads recently moved 200,000 tons of coal from the head of the Great Lakes to the State of Washington.

The volume of ore coming down the Lakes this summer will also be increased, the program calling for 95 million tons this year or 2 million tons more than last. This traffic will have to be handled in a relatively shorter period of time, inasmuch as the season was three or four weeks later than usual in starting. The increased movement of coal and ore is expected to require the full time of 25,000 open-top cars.

Typical of the special problems encountered in certain districts is the shortage of hopper cars in the Illinois field. The railroads in this territory are not equipped with hopper cars to the degree needed at the present time by reason of the change in demand from flat-bottom and other types to hopper cars. This particular problem is giving considerable concern both to shippers and the railroads involved.

Mr. Betts said that flat-car supply presents a more serious situation than that of any other type of equipment. The military movements have been exceptionally heavy and include 100 to 150 troop trains a day, often considerably more. There is a tremendous flow of these movements into the California area where current operating difficulties are due not only to the heavy volume of this traffic but also to interferences caused by floods, slides and other acts of nature.

Car Surpluses Are Dangerously Low

Further light can be thrown on the inadequacy of the present supply of cars by the car surpluses. In the case of freight cars, the surpluses varied downward from 70,000 to 58,000 during the first quarter of 1942 and reached a low of about 30,000 during October. During the first quarter of this year, the surpluses went down from a maximum of 81,300 to 35,100 and on April 3 were about 34,400. That does not look too promising for the fall period, unless the supply of new cars is built up much faster than now seems probable.

Open-top cars, including gondolas and hoppers combined, and all box cars may well be considered separately. Surpluses of all gondolas and hoppers during the first quarter of 1942 varied from 25,900 to 17,200. During the fall peak they dropped in two weeks to less than 5,000 and were less than 6,000 on three other weeks. During the first quarter of 1943 they went down from 30,000 on the first of January to 6,800 at the end of the quarter and were about 7,000 on April 3, again indicating a tighter situation than existed last year. During the first quarter of 1942, the surpluses of box cars varied downward from 28,500 to 21,000 in round

First Quarter Comparison of Car Loadings—1942 and 1943

	1942	*1943*	*Change*	*Car types*
Ore	192,775	189,285	−3,490	Open-top, box, and other
Miscellaneous	4,617,386	4,602,722	−14,664	Open-top and box
Coal	2,036,081	2,201,732	+165,651	Open-top
Coke	183,961	195,614	+11,653	Open-top
Grain and grain products	507,819	626,495	+118,676	Box
Forest products	576,920	495,629	−81,291	Open-top and box
Live stock	149,473	168,798	+19,325	Stock
Mdse. l.c.l.	1,891,787	1,179,640	−712,147	Box
Total	10,156,202	9,659,915	−496,287	
Mdse. l.c.l. (deduct)	1,891,787	1,179,640	−712,147	
Total carload loadings	8,264,415	8,480,275	215,860	

Increases and Decreases in Car Demand During 1943

	Open top and flat		Box	
	Decrease	Increase	Decrease	Increase
Ore	3,490	.....	.....	.....
Miscellaneous	4,050*	.....	6,970*	.....
Coal	.....	165,651	.....	.....
Coke	.....	11,653	.....	.....
Grain and grain products	.....	.....	.....	118,676
Forest products	48,600†	.....	32,680†	.....
Mdse. l. c. l.	.....	.....	712,147	.....
Totals	56,140	177,304	751,797	118,676
		56,140	118,676	
Net increase or decrease		121,164	633,121	

* Reductions in miscellaneous loadings are estimated to have been 28 per cent in open top and 48 per cent in box cars.

† Reductions in forest products loadings are estimated to have been 60 per cent in open top and 40 per cent in box cars.

numbers. The minimum during the fall was just under 17,000. This year, the highest number (on January 15) was 39,800, this figure dropping to 15,300 at the end of the quarter and on April 3 to 14,550.

These low surpluses, particularly of open-top cars, indicate an unusual fluidity of freight-car movement and it is difficult to see how a further reduction of present surpluses can take place without being accompanied by difficult car shortages in other places. The box-car situation is not as acute, but it is subject to rather sudden and unexpected peaks, as for example, the unusually high grain movement during the first quarter which was practically as high and much more sustained than the usual July peak of grain movement and was higher than the peak of grain movement which occurred during September and October of last year.

More Efficient Car Use—Heavier Loading

Railway operations in general slowed down last winter, as reflected by the increase in car turn-around time. The average was 13.1 days in October; 16.8 days in January; and 15.4 days in March. A great saving in car requirements can be made by shorter turn-around time, this being a responsibility not alone of shippers. The movement of traffic on the railroads last winter, for example, was retarded by the most severe weather conditions experienced in some places in the last 30 or 40 years. In the face of this handicap, the railroads handled the heaviest volume of traffic ever known for that season of the year. With improved weather conditions railway operations have become more liquid and better time is being made.

In the Shippers Advisory Board address mentioned, Mr. Betts said that O. D. T. Order 18 is having a good effect although the general average loading has made no spectacular increase. The figures are now available for November and December and show a slight improvement compared with October when the order went into effect. That improvement, however, is contrary to the seasonal trend because ordinarily there is a decrease in November and December in the average loadings as compared with October. A comparison of the loadings for December with October, 1942, shows increases ranging from 10 tons per car for rice to 7 tons per car for cement and building paper; 5 tons per car for flour; and 3 tons per car for lumber, fuel and paperboard.

Tank Cars Given Special Consideration

Heavy pressure has been put on railroads and private car companies to supply tank car equipment for handling petroleum or other essential services urgently needed in the war effort. Rail deliveries of petroleum products into the eastern coast area for the week ending April 10, 1943, for example, averaged 925,079 barrels daily, and in addition, an average of 24,667 barrels a day reached New England in the form of kerosene in metal drums. The achievement of handling this volume of traffic in tank cars and other equipment available implies an intensity of use which would have been considered impossible even a year ago. The railroads and shippers have cooperated in reducing turn-around time, which means stepping up speeds and minimizing delays on the road, at terminals and at loading and unloading stations. It is safe to say that one of the most important single factors in this transportation achievement has been the use of symbol trains which are handled as units through intermediate terminals and at average speeds well above anything previously attempted with this type of equipment.

Particular attention has been paid to maintenance and the analysis of defects which cause delays so that corrective measures may be taken promptly. All railroads and switching lines, for example, which handle these symbol trains now report semi-monthly all bad-order tank cars cut out of trains and show the kind and number of defects, and whether the cars are loaded or empty. These reports from individual railroads are analyzed by

A. A. R. Semi-monthly Report of Tank Cars Cut Out Account Bad Order
(Feb. 16 to Feb. 28 Incl. 1943)

	Loaded	*Empty*
Air brake inoperative	754	1,232
Air brake over date for cleaning	82	498
Piping and other air brake defects	1,197	1,152
Brake rigging, brake beams and hangers	2,424	1,667
Hot and cut journals	1,261	274
Wheels slid—flat	103	283
Other wheel defects	3,331	2,220
Truck spring and snubbers	489	879
Other truck defects	1,273	1,472
Couplers, draft gears and stops	1,478	1,213
Yokes, keys and yoke rivets	422	449
Other underframe defects	213	287
Safety appliances	1,165	1,754
Leaky tank	196	51
Other tank defects	252	513
For general repairs	8	21
Total	14,648	13,965

Grand total loaded and empty	28,613
Cars shopped at loading or unloading points	1,593
Total cars handled	578,299
Total loaded tank cars handled	288,932
Per cent cut-outs to cars handled	4.95

Private Cars Undergoing or Awaiting Repairs for the Two-Week Period Ending March 31, 1943

Tank cars	
Total owned	135,131
Undergoing or awaiting heavy repairs	1,082
Undergoing or awaiting light repairs	1,885
Undergoing or awaiting repairs, total	2,967
Per cent undergoing or awaiting repairs	2.19
Refrigerator cars	
Total owned	109,754
Undergoing or awaiting heavy repairs	1,651
Undergoing or awaiting light repairs	1,442
Undergoing or awaiting repairs, total	3,093
Per cent undergoing or awaiting repairs	2.81

Why Flat Cars Are in Demand

the Mechanical Division of the Association of American Railroads and a summary report is distributed semi-monthly to officers and field inspectors of the A. A. R. and to representatives of the O. D. T. The object of the report is to indicate the particular types of defects which are giving trouble at one time or another and thus enable them to be corrected promptly and increased car mileage obtained. The sub-committee which compiles and analyzes the summary report and is authorized to act on the information developed includes representatives of the A. A. R. Mechanical Division, the O. D. T. Mechanical Operating Section and private car owners.

One of the accompanying tables shows the types of information given in these summary reports and indicates that, during the last half of February, for example, the maximum number of road delays to tank cars, both loaded and empty, was due to wheel defects, with brake rigging, brake beams and hangers running a fairly close second; couplers and draft gears, third; hot and cut journals, fourth, etc. A grand total of 28,613 loaded and empty tank cars was cut out of trains on account of defects during the two-week period covered, which constituted 4.95 per cent of the total movement of 578,299 tank cars handled.

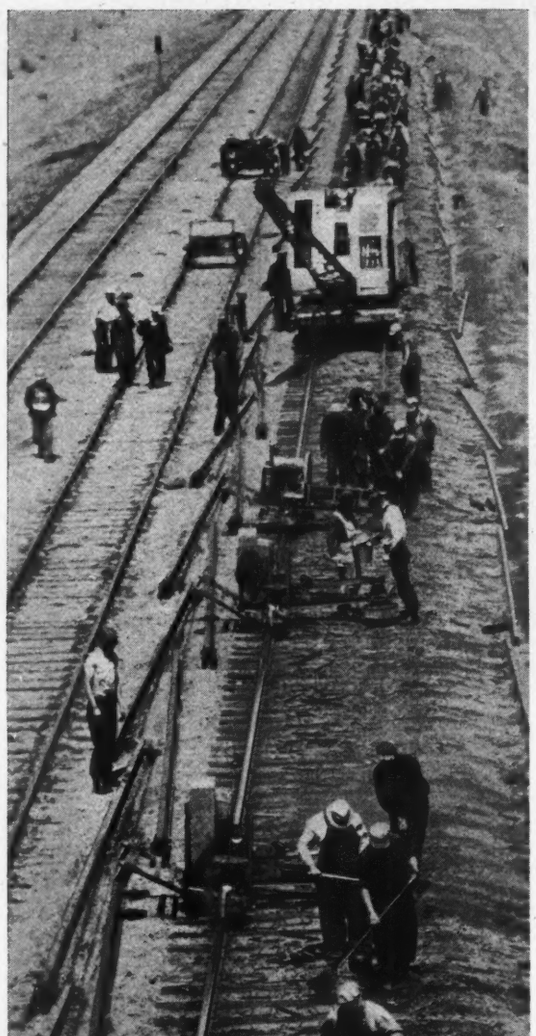
The status of private cars undergoing repairs is shown in another report made to the O. D. T. Mechanical Operating Section by individual private car owners, a summary statement for the period ending March 31 being given in another of the tables. Both tank cars and refrigerator cars are covered in this report which indicates that 2.19 per cent of the total ownership of tank cars are either undergoing or awaiting light and heavy repairs. In the case of refrigeratory cars, a total of 2.87 per cent are undergoing or awaiting light and heavy repairs. By the use of these two reports, accurate control of car conditions is assured and substantial progress made in the effort to secure more efficient use of the equipment.

Tank car defects are being repaired promptly throughout the country due to concentrated attention on this particular equipment. The New York Central cut out for repairs and shopped 3,510 tank cars in the last two weeks of December and this number was increased to 3,975 cars in the last half of February. In the latter period, the New Haven shopped 640 tank cars; the B. & O. 2,798 cars; the T. & N. O., 1,471 cars; the Cotton Belt, 1,431 cars; the Frisco, 973 cars; and the C. R. R. of N. J., 644 cars. Seventy per cent of the car repair capacity of the Elizabethport shop of this road is devoted to tank car work. In the month of March, the Illinois Central repaired 1,531 loaded tank cars and 2,778 empties at shop points, and 1,427 cars at loading and unloading points, making a total of 5,736 cars, or about 7.3 per cent of the 78,000 tank cars handled by this road during March.

Armchair "Experts" Complacent

Various predictions, made at intervals within the last few years and indicating imminent breakdown of the railway transportation machine due to lack of an adequate supply of serviceable freight cars, have so far been unfulfilled. It has beeen said that responsible railway officers discounted these earlier predictions and adopted a somewhat complacent attitude towards them, but now the positions are apparently reversed. The "experts" no longer voice alarm, although car conditions are in general much tighter, and railway specialists in car maintenance and supply are deeply concerned, not so much at the prospective shortage of certain classes of cars such as gondolas and flat cars, as at the present rapid exhaustion of transportation reserves represented in freight car service life. In other words, serviceable freight car miles are being run out far faster than they are now being restored by repairs and the relatively small amount of new equipment which is going into service. The present trend points inevitably to transportation shortages in the future which can be obviated only by the injection of substantial numbers of new freight cars into the bloodstream of railway operation.

Track and Structures W



Without Adequate Replacement Rail to Off-Set Wear and Tear, Adequate Rail Transportation Would Be Jeopardized Seriously

Railway engineering and maintenance officers see in strong tracks and bridges, adequate terminals and locomotive servicing facilities, vitally important means of providing the dependable rail transportation that is so essential to the uniform flow of traffic. This article expresses their point of view, tells what they have been doing to provide adequate facilities, and points out their essential needs for materials, equipment and labor if the fixed properties of the railways are to keep pace with today's demands.

ONE of the surest ways to retard victory in the all-out war which the country is now waging, if not to court defeat, is to allow the rail transportation systems of the country to get out of step with war and essential civilian demands—and the surest and most effective way to cripple rail transportation, both now and in the future, is to fail in the adequate maintenance of the railway tracks, bridges, yards and terminals, fuel and water facilities, and other essential elements of the railway fixed properties. Serious as the under maintenance of locomotives and rolling stock would be, it could not compare with a weakened, unsafe track structure or inadequate yards, terminals and locomotive servicing facilities, which would affect adversely not only isolated train loads of war-critical materials, but which would slow down and jeopardize the safety of *every* train load involved in the war effort.

That the railways are as essential to the winning of the war as military men, munitions and materials has been demonstrated beyond dispute, and is recognized readily by the public, military leaders and those in authority at Washington who control the material and labor supplies of the country. Unfortunately, however, the fact that the railways must be revitalized constantly with new equipment and materials; must be maintained to offset the heavy toll in wear and tear that they are sustaining under the peak war load; and must have adequate manpower to carry out this essential construction and maintenance work, does not appear to be recognized as readily in some quarters of authority—a situation that, unless corrected, can, unwittingly, throw the entire war effort of the country out of balance and so weaken the home front that it cannot support a victorious battle front.

In the light of this fact, a fact that since the onset of the war has withheld from the railways materials and supplies adequate to recoup the wear and tear of the record-breaking war-stimulated traffic that they are carrying—and coming on top of a depression-weakened physical plant—it is no wonder that engineering and maintenance of way officers are becoming deeply concerned about the ability of their tracks and other facilities to continue to meet the demands, and that they are becoming increasingly insistent that their pleas for adequate materials, equipment and manpower—the three ingredients fundamental to a sound railway plant—be recognized. They know that, as fundamental as the physical law that what goes up must come down, what is taken out of the already none-too-strong railway properties through the use and abuse of war-time traffic, both military and essential civilian, must be replaced if a breakdown is to be avoided.

Railroads Not Just a Tool of War

And what about the post-war conditions of the railways? These same officers know that as essential as adequate railroads are to the winning of the war, they will be equally as essential in the reconstruction period after the war—a period of major readjustments in industry to meet the vast pent-up demands of 135,000,000 people settling down to the pursuits of peace. Only with adequate railroads can the country back up its industries and win the war; only with adequate railroads

Waging Up-Hill Fight To Keep in Step With Traffic

can it back up its industries and win the equally important struggle of speedily restoring a sound, expanding post-war economy.

O. D. T. and I. C. C. Concerned

In their plea for adequate facilities and adequate maintenance, engineering and maintenance officers do not stand alone. Repeatedly, Director Eastman of the Office of Defense Transportation has pointed out the need for adequate facilities, has admonished maintenance men of the importance of their responsibilities, and has urged that they be furnished adequate materials and labor. Backing them up also, on several occasions, the Interstate Commerce Commission has expressed concern about the equipment and maintenance situations on the railroads. This concern was reflected clearly in its most recent annual report, which warns that "unless there can be allocations of sufficient materials to the transportation agencies to permit them to maintain, renew and operate their plants, so that they can continue their present standard of service, more restrictive government control of the use of transportation service will necessarily follow." Recalling the similar warning of its previous report, the Commission, while asserting that "some increase in equipment is also clearly necessary" thought it now "safe to say that continuance of sufficient transportation during the war depends more on the adequate maintenance and replacement of the physical plants and equipment of the carriers than on any other factor."

Moreover, the report of the Commission ties in the shortage of materials definitely with the increasing accident rate occurring on the railways, pointing out that the situation disclosed by recent accident reports emphasizes "the importance of allocating to the railways the materials necessary for adequate maintenance of plant and equipment," as well as the need for increased safety effort. "Restrictions placed upon the use of materials required for railway facilities and equipment," the report adds, "have resulted in serious delays in revising existing installations, in making necessary new installations, and in securing needed replacements and additions."

Railway men, the ODT and the Commission do not show this concern for the adequacy of the railways blindly or selfishly, but rather with the deepest sense of patriotism and regard for the maximum effective war effort. They know that materials are needed for ships, tanks, guns and munitions, but from their experience, they know only too well also, that in a country of such broad expanse, with widely scattered raw materials and war industries, there cannot be adequate ships, adequate tanks, adequate trucks and guns, or adequate firepower behind them, unless there are adequate railroads crisscrossing the home front to bring together and distribute the vast quantities of materials entering into these essentials of successful warfare.

It is not as though after years of oversight or neglect the railroads are now crying "wolf, wolf," as regards their essential needs. It is true that to survive the drastic economic depression of the Thirties, they were forced to curtail seriously expenditures for improvements and maintenance, and to lean heavily on the strength and

Without Modern Engine Terminals, the "Iron Horse" Would Be Slowed Down to a Walk

stability built into their facilities during the late Twenties, but even during this latter period, anxious to keep abreast of needs, expenditures for maintenance were increased as rapidly as increased earnings would permit, and assumed large proportions in the relatively favorable years of 1937, 1939 and 1940, averaging approximately $486,000,000 in those three years, as compared with average annual expenditures of only $346,255,000 during the three years 1932, 1933 and 1934, at the depths of the depression.

Preparations Before War Began

In 1941, in step with the then growing defense effort of the country, expenditures for maintenance of way and structures rose sharply to more than $600,000,000, and since the entry of the United States into the war, with the huge additional demands that have resulted, expenditures for maintenance of way and structures, to make the railways adequate to the new load, have been limited more by the inability to secure the necessary equipment, materials and labor than by any other considerations—expenditures for these purposes rising to more than $775,000,000 in 1942, higher than in any year since 1929.

At the same time, the railways enlarged and improved their fixed properties to meet the increased demands to the extent that was made possible by increased earnings. This is evidenced by the fact that the expenditures for additions and betterments rose from a low of $88,493,000 in 1933 to $186,916,000 in 1937, $157,241,000 in 1940, $175,453,000 in 1941, and $185,523,000 in 1942.

While these figures show conclusively that the railways have been currently alive to the increased needs and responsibilities of the increasing traffic of recent years, the large increases in expenditures for both additions and betterments and for maintenance in these years must not be allowed to obscure the true picture of the condition of the fixed properties of the railways—a picture that can be had only by reviewing these expenditures in the light of traffic demands. To clarify the picture, therefore, the following figures are given of the average revenue ton-miles of traffic, average maintenance of way and structures expenditures, and average expenditures for additions to and betterments of fixed properties in the five-year period 1925 to 1929, and in the five-year period 1938 to 1942.

In the former period, when average annual revenue ton-miles were approximately 433,307,000,000, the average annual expenditures for maintenance of way and structures were approximately $849,021,000, and the average annual expenditures for additions and betterments were approximately $478,174,000. By comparison, in the latter five-year period when annual average revenue ton-miles were approximately 421,983,000,000, average annual expenditures for maintenance of way and structures had declined to $572,419,000, and average annual expenditures for additions and betterments to $151,677,400. From these figures, it is seen that whereas for the two periods, the need, as represented by revenue ton-miles of traffic handled, was only 2.7 per cent smaller in the more recent five-year period than in the earlier five-year period, average annual expenditures for maintenance of way and structures in the latter period were more than 32 per cent smaller than in the earlier period, and average annual expenditures for additions and betterments were more than 68 per cent smaller.

These facts, combined with the fact that annual expenditures for maintenance of way and structures and for additions and betterments dropped as low as $322,286,000 and $88,493,000, respectively, during the depths of the depression, indicate not alone the greater output of the physical properties of the railways per dollar of expenditure for maintenance and construction in recent years, but with equal clarity, that the railways are far behind in their needs for construction, and that their maintenance has not kept pace with the recent record-breaking demands of traffic—demands that are rising still higher in the present year.

High-Speed Turnouts and Spring Switches Keep 'Em Rolling Without Delays

Rail Situation Becoming Serious

These deficiencies in the fixed properties of the railways are in evidence in almost every element making them up, and are being felt most keenly in the track structure, which is the very foundation of rail transportation. In this latter respect, the rail situation is particularly serious, and promises to become increasingly so—to the critical point on many roads—unless an adequate tonnage of new rail can be made available for essential replacement purposes.

In 1942, the railways laid in replacements approximately 1,210,000 gross tons (1,355,200 net tons) of rails, which was a larger amount than was laid in any year since 1930, although far below the expressed needs of the roads, and only little more than half the amount laid in any one of the years 1925 to 1929, inclusive. And this prevailed in the face of the fact that the volume of traffic in 1942, the direct measure of rail life, was greater than that in any of the years 1925 to 1929. Comparison in this regard shows that in the five-year period, 1925 to 1929, 4.76 gross tons of new rails were laid in replacements per million revenue ton-miles of freight handled, whereas in the year 1942, only 1.89 gross

tons of new rails were laid in replacements per million revenue ton-miles, or only about 40 per cent as much. On top of this, and the cause of serious concern of many track maintenance officers, the allowances of the War Production Board for new rail for replacements in the current year are again below the essential needs of the railways, with every indication that the WPB is willing to gamble still further with the adequacy and safety of rail transportation from this standpoint.

No Railroads if There Are No Rails

For 1943 replacements, the railways estimated their requirements at 1,875,000 gross tons (2,100,000 net tons). In its desire to be ultra-conservative in the face of other essential needs for steel, the Office of Defense Transportation, acting for the railways, requested from the War Production Board only 1,607,142 gross tons of rail for the year (1,800,000 net tons), which, in equal installments, would have allowed 401,785 gross tons (450,000 net tons) in each of the four quarters of the year. However, it urged that the preponderance of the rail be made available in the first three quarters of the year to permit better laying and surfacing conditions than might be possible late in the year, at least on roads in the north. In recognition of this latter plea, the WPB at first authorized the rolling for delivery in the first quarter of the year, of 428,571 gross tons (480,000 net tons), which raised hopes among maintenance men that with comparable allowances in the second and third quarters, they would receive their essential needs for the year as a whole. But these hopes were short lived when the first quarter allotment was subsequently cut to approximately 357,143 gross tons (400,000 net tons), and were shattered when the WPB authorized for rolling for delivery in the second quarter only 312,500 gross tons (350,000 net tons), in spite of protestations on the part of the railroads.

That such a drastic reduction from their expressed essential needs is serious for the roads as a whole, and may well be critical for many roads, is attested to by track maintenance officers on every hand, and, unquestionably, will be reflected in further train accidents and delays, slowing down the war efforts. As recently as April 8, Roy B. White, president of the Baltimore & Ohio, said in an interview, that, "Only a shortage of steel rails can prevent the American railroads from establishing new pinnacles of war-time transportation. . . . If we can get the rails from the mills, the resulting ton-miles will make history."

Speaking more recently, at the annual stockholders meeting of the Burlington on May 5, Ralph Budd, president of that road, said, "The extremely severe use of the railway plant has caused rail to become perhaps the most critical of all our materials problems, and if the war lasts long it will be imperative that more new rail be laid to carry safely the constantly growing burden of traffic."

In the light of the request of the roads for a minimum of 1,800,000 net tons of rail during 1943—equivalent to 450,000 net tons in each quarter—and the failure to allot them one-half of this amount in the first half of the year by 150,000 net tons, the ODT, acting as the claimant agency for the railways urged that the railways be allowed a total of 600,000 net tons of rail in the third quarter of the year to bring 1943 deliveries to the end of the third quarter into step with the requirements, but it is now understood that only approximately 375,000 net tons will be rolled during the third quarter. In the face of this, the ODT should leave no doubt in the mind of the War Production Board that it must be responsible for any failure of the roads to meet demands, with its effect upon the war effort.

As a matter of fact, if the railways were to be allowed to receive and lay their essential requirements of 1,800,000 net tons of rail in 1943, they should have had more than the 600,000 net tons requested for the third quarter, because of the importance of getting all 1943 rail into the track and surfaced carefully before winter conditions set in. There is some indication that the WPB may be more liberal with rail in the fourth quarter of the year, but coming so late, it may be impossible for many roads to lay the rail before the track freezes up, and certainly it will be impossible for some of them to give it the attention it should have before being subject to the abuse of traffic throughout the winter.

Tie Shortage Ahead

Serious as is the rail situation, it is only one phase of the construction and maintenance problems confronting engineering and maintenance officers in their struggle to

Adequate, Well-Equipped Yards Are As Essential to War Transportation As Well-Maintained Main Line Tracks

keep the fixed properties in step with the needs of wartime transportation—a struggle in the face of shortages in nearly everything they need—materials, work equipment and manpower—and made the more difficult by traffic conditions that restrict their use of the tracks, that will not tolerate slow orders, and that make unavailable to them the cars and locomotives for company services that would speed up or lighten their work.

While there has been no restriction on crosstie lumber as such, the crosstie problem looms large in the minds of many maintenance men, first, because of the starvation diet in ties during the depression years, which has still not been made good on many roads, in spite of the relatively larger number of renewals in recent years; and second, and still more serious, because of a drastic reduction in the production of ties in many areas this year, which it is beyond the ability of the roads to correct. This reduction in tie production has been brought about by a variety of reasons, including the shift of some mills to the manufacture of dimension lumber; the two ceiling levels for ties, which, until recently, gave the army and the navy an advantage in the tie market; the drain of the military services upon the manpower of the tie industry; and, more recently, at least until the labor freeze order of the WLB on April 18, the further drain on its manpower as many of its men shifted to farming to secure a more favorable deferment status.

Fortunately, many roads have adequate tie stocks on hand for the current season's renewals, although many others do not. Furthermore, and still more serious, is the outlook for ties in 1944 and 1945, an outlook which must be improved, and improved promptly, if the railways are not to be faced in those years with a materially weakened track structure through their inability to secure ties.

Stronger, Safer Track Structure

Confronted with these problems, many of which are not new to them, engineering and maintenance officers have shown no disposition to sit back and complain. On the contrary, as through the depression period when inadequate earnings caused enforced shortages in nearly everything the railroads are short of today, they have taken up notch after notch in their belts, and through the development and adoption of better designs, and of ingenious methods and practices, they are stretching out the service life of nearly every element that goes to make up the fixed properties of the railways.

Take for example rail, which, through improved design, larger sections, improved chemical composition, improved mill practice and improved methods of laying and surfacing, is an entirely different product today than it was as recently as 10 years ago. In recent years, as much as 90 per cent of the rails rolled for use in the steam railways of the country has weighed 100 lb. per yd. or heavier, with as much as 39 per cent in sections weighing 120 lb. per yd. or more, whereas as recently as 1933, only about 75 per cent of the railroad rails rolled in this country were of sections weighing 100 lb. per yd. or more.

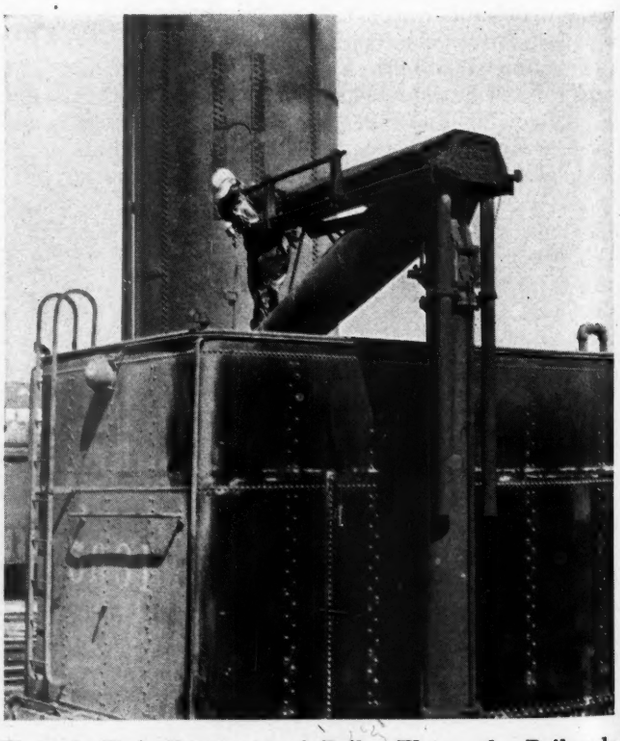
In recent years, there have been outstanding developments in the manufacture of rails, including the Brunorizing and controlled-cooling processes, to eliminate the cause of the dreaded transverse fissure, a type of failure that has not only caused many costly train accidents, but which, through precautionary measures taken, has relegated hundreds of thousands of tons of otherwise sound rails to minor service in slow-speed secondary tracks. As a result of these improvements in manufacture, which have been adopted almost 100 per cent in spite of the increased cost involved, the transverse fissure problem in new rails is believed to be under control.

To minimize the still serious threat of transverse fissures in those many thousands of miles of rail rolled and laid prior to the development of Brunorizing and controlled-cooling, as well as to keep a constant check on the newer rails, there have been constant developments and refinements in transverse fissure detector equipment —equipment that is equally effective in ferreting out hidden defects of other types that impair the safety of the track structure.

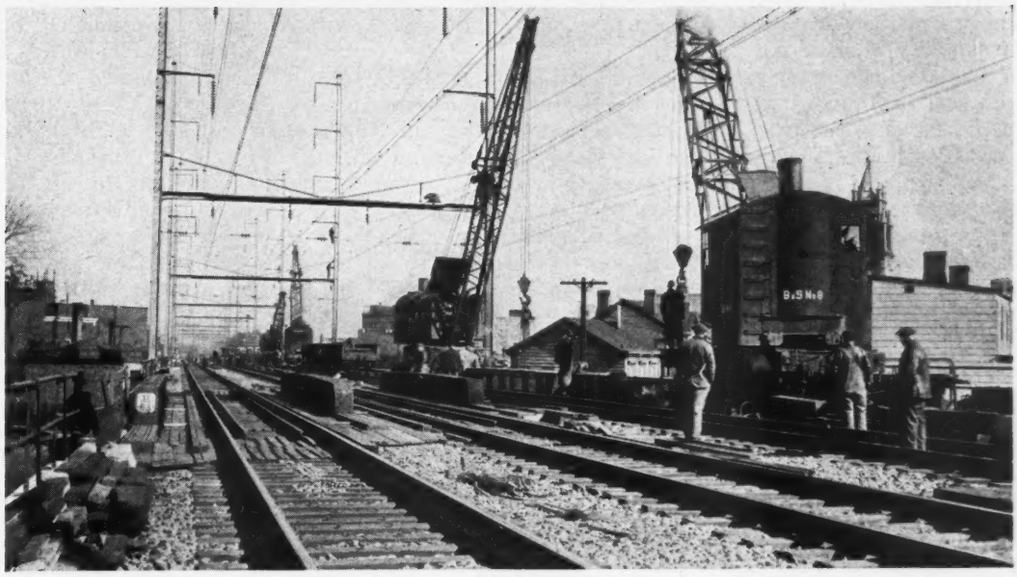
Furthermore, today, with its intensive, war-critical traffic, this equipment is being operated over the important tracks of most roads two or more times each year, and at least one road is now testing its most important tracks according to a carefully planned program ever 60 to 90 days.

With these developments and practices to increase the service life and integrity of rails has come the hardening of rail ends at the mill and in the field to minimize the destructive batter of passing wheels; rail-end welding and grinding to offset such batter as must inevitably occur under the heavy traffic that prevails today; the development and widespread adoption of means of reconditioning rail joints to restore their serviceability, prolong their life and improve riding conditions; the use of stronger track fastenings of improved design; the use of larger treated crossties of improved quality, combined with the use of better grades of ballast in more liberal quantities—all in the interest of a stronger and more stable track structure, requiring minimum man-hours of maintenance, while resulting in the maximum conservation of war-critical materials.

Combined with these growing practices, as traffic has dictated or demanded, have come the widespread strength-



Through Their Treatment of Boiler Water, the Railroads Have More Than Doubled the Availability of Their Power for Road Service



Essential Bridge Work Must Be Continued to Avoid Weak Links in the Lines of Rail Transportation

ening of the roadbed through bank widening, cut widening, ditching and subdrainage, all measures which give increased stability to an overworked track structure, and all measures that —using little, if any, critical materials —will be stressed on many roads during the present year to stretch out the service life of their rail which, under more favorable conditions, would be renewed.

Speed Built Into Tracks

While making these types of improvements, primarily in the interest of strength, stability and safety, another most important factor influenced the thinking of engineering and maintenance officers, and that is the factor of speed—speed with safety—a factor that under today's demands for expedited traffic, is more important than ever before. To permit high-speed train operation in both freight and passenger service, many roads have been building new standards of refinement into every element of their track—standards that would have seemed totally unwarranted as recent as 10 years ago. At the same time, they have inaugurated extensive programs of curve reduction, with long approach and run-off spirals, proper superelevation and careful attention to gage, permitting speeds up to 90 m. p. h. with safety, where as low as 30 to 40 m. p. h. was the limit before.

While many of these improvements were undertaken primarily in connection with the stepping up of passanger train speeds, it is not without significance that almost invariably they have been followed by expedited freight schedules—schedules that have frequently approached or equaled former passenger train speeds in the territories involved.

Combined with these improvements, and for the same purpose, road after road has relocated and lengthened passing sidings to permit non-stop meets; has installed longer turnouts at points of crossover, at the ends of double track and at points of departing routes; has installed and adjusted hundreds of miles of various forms of automatic signaling; has installed spring switches at the ends of double track and at passing siding turnouts; and has provided mechanical locks on main line switches to prevent their being opened accidentally under trains as the result of damage to the switch stands or other operating mechanism. All of these developments, now generally accepted in the interest of expedited train movements with safety, have been adopted as rapidly as earnings would permit, and await further extensive adoption only upon the availability of the materials and the labor to effect their installation.

There have been those who have frowned upon these developments to permit high-speed train operation, and who still urge lower passenger and freight train speeds in lieu of building up and maintaining the tracks for the higher speeds. Those who thus argue overlook the profound effect of expedited deliveries of war and essential civilian materials to widely scattered parts of the country. They also overlook or disregard the highly favorable effect of these expedited train movements upon the car and locomotive supply of the country—and at a time when, if it were not for these and similar improvements increasing the speed and efficiency of train operation, the already serious locomotive and car supply situation, in the face of limited building programs and intensive utilization, would be critical with drastic effect upon the nation's war effort.

Speed Up Yard Movements

Still another type of improvements to the fixed properties of the railways that has been undertaken on an increasing scale in recent years, and is having a profound influence upon the success with which the roads are handling the peak traffic, is the enlarging, modernizing and relocating of yards and terminals and fuel and water facilities. If the importance of adequate, well-located and well-laid-out yards and terminals to speed up railway operation was ever questioned, it was not by railway operating men—men who have every reason to know, now more clearly than ever before, that an inadequate yard or terminal, poorly located and equipped, can be a bottleneck, delaying thousands of cars and many locomotives, and offsetting all of the advantages gained through the expenditure of millions of dollars for improvements to attain high-speed operation out on the line. Thus, in harmony with the generally increasing tempo of freight service of recent years, yard and terminal projects have been undertaken just as rapidly as limited earnings have permitted, and with the increased earnings of the last two or three years and the heavy demands of war traffic, a number of roads have carried out extensive projects—projects that have been

limited in their scope and completeness only by the unavailability of materials.

Outstanding examples of recent yard and terminal projects are those carried out by the Norfolk & Western at Portsmouth, Ohio and Roanoke, Va., and of the Chicago, Burlington & Quincy at Galesburg, Ill., each of which projects has resulted in saving thousands of car-days monthly and generally expedited rail movements all along the line. All of these yard projects involve gravity hump classification of cars with car-retarder control, power switches, floodlights, modern signaling, teletype equipment for transmitting consist and switching lists, and the latest in voice communication systems.

Some Modern Locomotive Terminals

Typical of the most effective locomotive terminal improvements that have been carried out recently are those of the Chicago, Rock Island & Pacific at Armourdale, (Kansas City), Kans., where the time involved in turning a large number of engines daily was reduced materially, and at Cheyenne, Laramie and Green River, Wyo., and at Ogden, Utah, on the Union Pacific, where extensive improvements have been made. At these latter points, 135-ft. turntables, lengthened enginehouse stalls, large-capacity drop pit tables, and modern boiler washing, boiler refilling and steaming facilities have been provided as the need at each point required to permit the rapid turning of locomotives, including the road's giant new 400-Class articulated locomotives, which are making such an outstanding record in handling transcontinental traffic.

Improvements in locomotive fuel and water facilities have made no less a contribution to the increased tempo of train operation and to the maximum utilization of motive power. In fact, it is an accepted fact among operating men that, in spite of the many improvements that have been made in locomotives during the last decade, the present motive power of the railways would be totally inadequate to handle today's traffic if it were not for the increased dependability and improved quality of locomotive boiler water that have been brought about during the same period.

To make possible longer engine runs and the more intensive use of their power, the roads have continuously sought out more dependable supplies of good quality water, especially in areas affected by droughts; have relocated and enlarged hundreds of water stations; have installed modern pumping equipment and large-capacity delivery facilities; and, of the greatest importance, have provided scientific water treatment to produce the most suitable boiler waters. Today, largely as the result of this scientific treatment of boiler waters, engine failures due to bad water conditions are the exception rather than the rule, one road, for example, having reduced such failures from 1 per 5,000 locomotive miles in 1920 to 1 per 10,000,000,000 locomotive miles today. With delays due to engine failures ranging from 1 to 3 hr. per failure, the huge advantages that have been and are now being effected by the roads of the country as a whole through trouble-free locomotive utilization as the result of adequate water treatment, are readily understandable.

Better Boiler Water Helps

Combined with this factor, improved boiler water is increasing the utilization of power through less frequent inspection, less frequent water changes and boiler washouts, and less frequent shoppings for routine boiler repairs. In fact, it is estimated conservatively that through their treatment of boiler waters, the roads of the country have more than doubled the availability of their power for road service—a claim, the significance of which can be appreciated only in the light of the predicament that would confront the railroads, if, through lack of suitable or adequate water treatment, their present motive power was halved in its effectiveness.

Still another advantage that is being gained through the provision of suitable boiler water is the large saving that is being made in the man-hours of enginehouse and shop forces, and, not to be overlooked, too, especially in the light of the present need for the maximum utilization of cars, is the large saving that is being effected in the use of revenue cars for carrying company fuel through the freer steaming qualities of softened waters—a saving that is estimated at more than 150,000 tank and coal cars annually—cars that are now available for the handling of essential traffic.

While such outstanding results have not been achieved, and are not possible, in the field of locomotive fueling stations, the railways, through the modernization and relocation of fueling plants and the enlargement of engine tenders, have reduced the number of required fueling stops, have combined fueling stops with water points to reduce further the number of stops and to save time, and have shortened materially the time required to replenish fuel supplies. Not unusual is the experience of one road, which, through the provision of combined main-line fuel, water and sanding stations at two different points, is effecting an average saving of 30 min. delay to every freight train stopping at each of these points.

Mass Production Methods Adopted

No less striking in the efforts of the railways to speed up train movements is the complete reorganization of track and bridge maintenance methods that has been adopted where possible and necessary to preclude interference with train operations. Today, employing off-track equipment insofar as possible, new methods of falsework, high-speed shoofly tracks and working schedules closely interlocked with operating schedules, even slow orders are being abolished in the interest of more efficient train operation.

To a large extent, these advantages have been made possible only by the widespread mechanization of track and bridge construction and maintenance methods during the last 10 or 15 years, a development which has also permitted a higher standard of work, and, of maximum importance at the present time, if not the salvation of the construction and maintenance forces in the face of the serious labor shortage that has developed, has multiplied the effectivenes of every employee.

Restrained in the mechanization of their forces until the development of the internal combustion engine, the roads of the country have since made rapid strides in this respect, until today most track and bridge maintenance operations are as fully mechanized and organized as the operations in the most efficient shop or industrial plant. The extent of this mechanization during recent years is seen in the fact that the roads of the country have spent more than $40,770,000 for more than 29,000 power tools and units of work equipment for their track, bridge and building and water service forces since the beginning of 1937, their expenditures for such equipment reaching a peak of $10,500,000 in 1941, a peak that was not exceeded in 1942 only because of war-time priorities

which made unavailable all of the equipment desired.

In spite of all that has been done by the engineering and maintenance forces of the railways to provide adequate tracks, bridges, buildings, yards, terminals, water and fuel stations and the numerous other facilities that enter into the foundation of sound railroading, and in spite of unwavering loyalty and untiring effort, they face with confidence their ability to provide and maintain these facilities adequate to the huge demands of the country's all-out war effort only as they see the unceasing flow of materials, equipment and manpower that will make this possible. Having already accumulated a huge amount of deferred maintenance and construction largely through their inability to secure the necessary materials, and still faced with a rising tide of traffic, with its certain further demands for facilities and toll on the track structure, these officers are, therefore, planning for the present year, the largest construction programs since 1931, estimated to cost $275,000,000, and the largest maintenance programs since 1929, estimated to involve the expenditure of $880,000,000.

To a maximum degree, these war-time construction and maintenance programs include only projects essential to the present demands of traffic, and call for a standard of maintenance adequate only to the certain traffic demands ahead. Furthermore, through redesign, ingenious methods, reclamation and substitution, they preclude the use of critical materials and equipment to the greatest extent possible.

Construction and maintenance men recognize fully the need for the careful rationing of critical materials; they accept willingly the deferment of nonessential maintenance and betterment projects, but, knowing better than anyone else that there can be no dependable railroad transportation without a sound track structure, backed up by safe bridges and adequate yards, terminals, and locomotive servicing facilities—and that there can be no victorious war effort without dependable rail transportation—they will continue to insist that they be protected in their essential needs for materials. Furthermore, with shortages in track, bridge and building and water service labor as the result of calls to military service and deflections to other war-time industries, including agriculture—becoming critical in many sections of the country, as pointed out in another article in this issue—they will insist that their labor requirements be recognized and protected to the fullest extent possible. To do other than insist upon their essential requirements in materials and labor would be for them to fail in their duty to their respective roads, and, of greater importance, to their country—and engineering and maintenance men do not intend to fail.

Organization Perfected For War-Time Transport

(*Continued from page 1008*)

15-G-1-60 cars, the route number 15 indicating that it will move via Missouri-Kansas-Texas to St. Louis; Terminal R. R. Association; New York, Chicago & St, Louis and Lehigh Valley. Each of the railways involved in the route reports the movement of the trains by wire.

The allocation of these symbol oil trains to the various railroads in made on a capacity basis and so distributed that maximum use may be made of available power on the various railroads. The movement of these symbol trains is followed closely and, at the first indication that a road forming a part of the route is congested and cannot operate the oil train on schedule, the O. D. T. orders the diversion of the train to such other route as is able to handle it expeditiously. This arrangement was put into effect on March 1, 1943, and between that date and April 30, the O. D. T. diverted 326 trains.

Through these and similar means, the Office of Defense Transportation has assisted in keeping traffic moving and in so allocating the freight of the country as to make as full use as possible of the total transportation capacity.

Control by the W. P. B.

On January 30, 1943, the War Production Board stepped into the transportation control picture and issued General Transportation Order T-1, controlling the use of tank cars and tank trucks for the movement of all commodities except petroleum and its products. It was explained that, because the order applies to shippers rather than carriers, it was issued by the War Production Board, which has authority over the distribution of materials, rather than by the O. D. T., "the authority of which is confined to the use of transport facilities."

The organizational set-up as described in this article is the result of the thought and effort of the country's outstanding railway transportation experts. The organization is necessarily large and the number of offices and agencies involved holds forth an ever-present danger of bureaucratic inefficiency.

This danger must be given every consideration, but it is a tribute to the caliber of the men involved in this complex undertaking that there has been so little of this. The spirit of co-operation and mutual understanding that has been shown is the spirit that wins wars. It will win this one.

* * *

A Pile of Scrap Before Rubber Got Scarce and Extreme Conservation Was Initiated

Modern Motive Power the Keystone of Freight Transportation

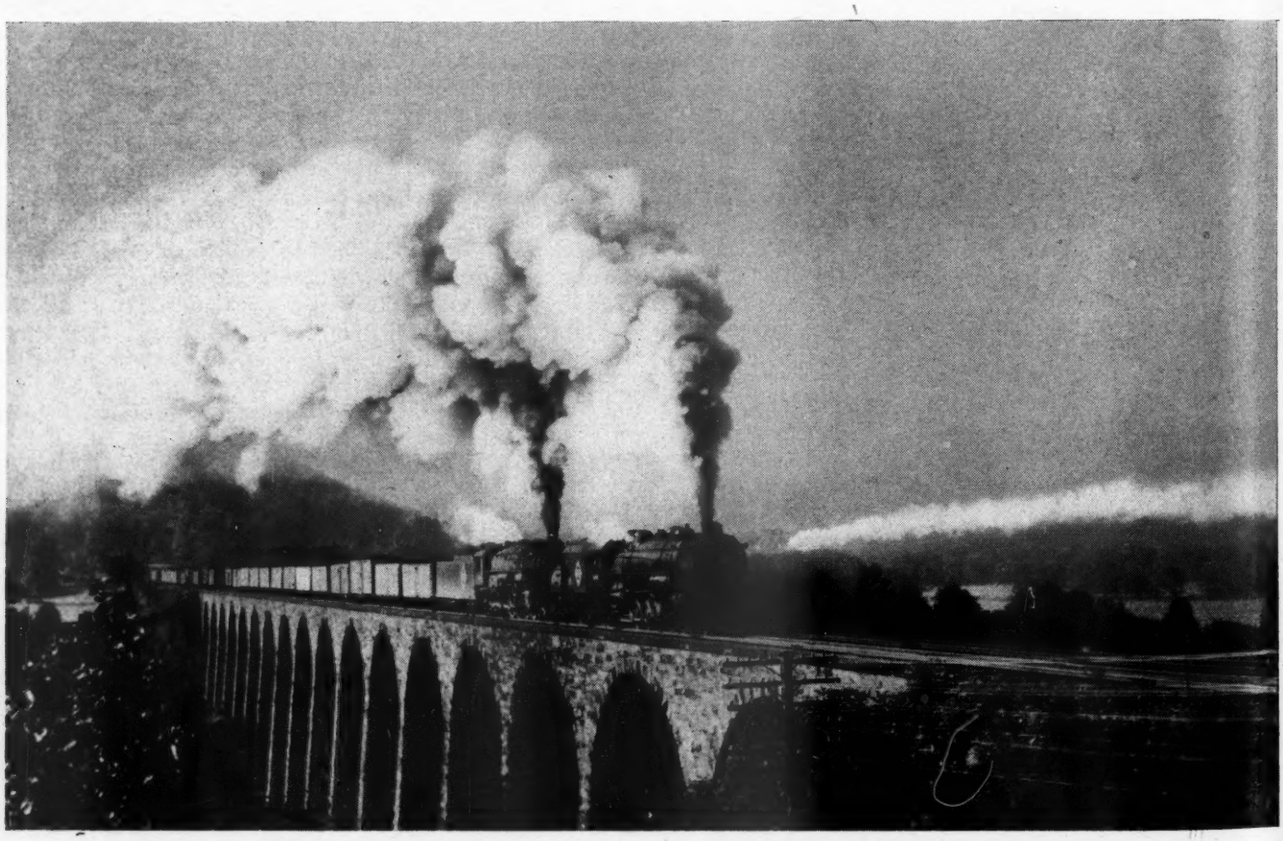
The performances of the past two years have demonstrated the value of the modern locomotive and are showing how to meet post-war competition on a cost basis

IN THE twelve months since the last Freight Progress issue went to press many records have been broken and history has been made in the utilization of motive power on American railroads. The accomplishments of the roads in the use of freight power have been so spectacular that it is now of considerably less interest to know that records have been broken than it is to know how it was done.

At this time there are several questions of prime importance that must be asked and answered with respect to motive power. When an industry has succeeded in doing that which only the most optimistic would venture to predict could be done, it is important to record the principles or the methods that made it possible. What are the characteristics of American motive power that contribute to high utilization rates? Are these high rates due to these characteristics as much as the utilization of slack in capacity for continuous service which has always been available but never before drawn upon? What part have engine terminal facilities and operating methods played in the establishment of the records of the past year? What has been the influence of the Diesel-electric locomotive in freight transportation? Does the increasing installation of this type of motive power, together with the approach of the steam- and gas-turbine locomotives, foreshadow the necessity of a radical change in the motive power policies of our railroads during the war and in the immediate post-war period?

It may be well as background for a discussion of this subject to review briefly the statistical record of motive power utilization. Obviously, the volume of traffic handled by means of steam freight power represents such a great proportion of the total that we must turn to the data with respect to that type of power to obtain comparative performances. Until the last two years it has been customary to consider the peak of traffic and, incidentally, motive power utilization, as occurring in the October weeks of high car loadings. It has been more or less general practice, in normal times, to plan motive power operations and establish policies with the idea of protecting the demand for power at these peak periods.

In normal times those responsible for the handling of motive power know that once the fall peak period has



passed there comes a breathing spell in which the excess mileage that has run out during the peak period can be restored more or less at leisure. The institution of our national defense program early in 1941 followed by the outbreak of war changed all this. In the fall of 1941 we had a traffic peak but instead of it being followed by a breathing spell it was followed by a continuation of higher and higher demands for the movement of traffic and the utilization of motive power month after month. This resulted in only a relatively slight traffic peak in October, 1941, ocacsioned by the imposition of the war-time load on top of the normal peak.

The statistical record of performance is shown in Table I. It is interesting to note that in October, 1929, when the Class I railroads had 28,912 freight locomotives, they handled 110.4 billion gross ton-miles and in the process utilized 21,755 locomotives representing 75.3 per cent active to total. An important point in this connection is that in that month and year there were 2,680 stored serviceable units and 4,417 in or awaiting shop. While the traffic of October, 1940, was not to be compared with that of 1929 the data in the table is interesting because it shows what the depression period did for the roads in the matter of retirements of motive power and the curtailment of equipment buying. The data for October, 1941, shows the effect of the demands of pre-war traffic on the motive power inventory in order to handle 116.3 billion gross ton-miles. In that month it was necessary to utilize 79.9 per cent of the total freight locomotives and there remained only 841 stored serviceable units.

Even at that time there was some question as to the economic value of the motive power that was in storage and it was recognized that most of it was relatively obsolete power when measured by the yardstick of the capacity of a modern locomotive. What has happened in the months since October, 1941, can be seen by reference to the table. The effect of the stepping up of the defense program after the outbreak of war is evident. However, with the exception of the months of November and December, 1941, during which period some unusual conditions prevailed, there has not been a month since when the railroads have not had to use more than 80 per cent of all of their total freight locomotives in order to handle the job.

The part that the maintenance forces have played is evident in the decrease month by month of the number of unserviceable locomotives and the gradual disappearance of the reserve of motive power is seen in the decrease of stored serviceable units. In the month of February, 1943, only 297 out of a total inventory of 22,048 freight locomotives were classed as stored serviceable power.

Car loadings no longer tell the story of freight traffic —the real story is told in ton-miles. Likewise, the real accomplishments in motive power utilization are not seen in the general statistics of freight operation such as appear in Table I. The real story is in the remarkable ability of high capacity locomotives built within the last 10 years to stay out on the road a greater number of hours per day and run more miles per day. The records of road after road show that relatively small groups of modern locomotives, representing in many cases only 25 or 30 per cent of the freight locomotive inventory of that road, are handling as much as 50 and 60 per cent of all of the freight traffic for the road.

Has There Actually Been Excess Capacity?

Whether or not some of the accomplishments in the utilization of power have been due to a slack in capacity previously not recognized but now utilized because there was a job that had to be done is rather difficult to be positive about. In normal railroad operation there is reserve capacity at any time except during traffic peaks. Most railroad men would have said in October, 1929, that there was not too much reserve capacity in the 2,680 stored serviceable locomotives. Many mechanical men expressed grave concern over the depletion of the reserve capacity to 841 stored serviceable locomotives in October, 1941. The question with which we are now faced, having succeeded admirably in handling all of the traffic that has so far been offered, is frankly that of asking whether or not the gambling with low motive power reserve which won the battle of transportation in 1942 can be considered the wise thing to do for the remainder of the war.

To the best of the ability of those who are responsible for motive power policies, estimates have been made of the new power needed to protect our transportation system against a failure to meet motive power demands. The exigencies of war and the competition for materials for our defense programs have forced the railroads to take less than their estimated requirements. This has been true not only of new equipment but of materials needed for maintenance. So far this job has been done with the available equipment because of two primary reasons—the improvements in engine terminal operation which have enabled the roads to turn locomotives in continually decreasing periods of time, plus the fact that the back shops have turned out motive power in less time than was ever before considered possible. The

Table I—Selected Statistics of Motive Power and Freight Train Performance

	Total freight locos. 1	Unserviceable 2	Stored Serviceable 3	Active locos. 4	Per cent active to total 5	Loco.-miles (000) 6	Gross ton-miles (000,000) 7	Freight train-miles (000) 8	Freight car-miles (000,000) 9
Oct., 1929	28,912	4,417	2,680	21,755	75.3	64,756	110,444	56,748	2,785
Oct., 1940	22,218	5,246	1,352	15,620	70.3	49,984	92,945	44,272	2,249
Oct., 1941	21,831	3,528	841	17,461	79.9	61,501	116,340	53,866	2,706
Nov., 1941	21,828	3,637	997	17,194	78.8	56,893	106,241	49,924	2,505
Dec., 1941	21,778	4,273	1,058	16,447	75.5	57,323	102,957	50,231	2,423
Jan., 1942	21,888	3,253	926	17,709	80.9	59,460	106,532	51,929	2,483
Feb., 1942	21,841	3,238	916	17,687	80.9	55,030	100,489	48,030	2,341
Mar., 1942	21,920	3,141	740	18,039	82.3	62,087	117,851	53,124	2,741
Apr., 1942	21,915	3,119	688	18,108	82.6	62,128	120,725	53,921	2,795
May, 1942	21,863	2,995	612	18,356	83.6	65,385	130,070	56,558	2,983
June, 1942	21,927	2,888	549	18,490	84.3	63,292	125,959	54,711	2,868
July, 1942	21,923	2,744	527	18,652	85.7	66,197	132,089	57,193	2,979
Aug., 1942	22,028	2,844	475	18,709	85.0	67,389	135,972	58,136	3,074
Sept., 1942	22,075	2,705	367	19,003	86.1	66,716	134,166	57,625	3,011
Oct., 1942	22,027	2,344	340	19,343	87.8	70,461	141,880	60,717	3,155
Nov., 1942	21,981	2,650	385	18,946	86.1	65,604	129,984	56,603	2,900
Dec., 1942	21,934	2,507	373	19,054	86.8	66,338	125,137	57,295	2,785
Jan., 1943	21,974	2,509	352	19,113	86.9	67,152	126,930	57,866	2,790
Feb., 1943	22,048	2,629	297	19,130	86.7	62,962	121,919	54,246	2,660

Data in Column 1 to 4 from I. C. C. Statement M-240 OS-F; columns 6 to 9 from I. C. C. Statement No. M-211 OS-A; Column 5 calculated.

Table II—Comparison of Freight Locomotive Mileage by Type of Power

	1937		1938		1939		1940		1941		1942	
	Loco.-miles (000)	Per cent of Total	Loco.-miles (000)	Per cent of Total	Loco.-miles (000)	Per cent of Total	Loco.-miles (000)	Per cent of Total	Loco.-miles (000)	Per cent of Total	Loco.-miles (000)	Per cent of Total
Steam	556,517	98.6	461,220	97.9	495,465	97.5	530,305	97.5	629,622	97.4	749,736	97.3
Electric	7,424	1.3	9,669	2.0	12,169	2.4	12,895	2.4	14,645	2.3	14,582	1.9
Diesel and other	79	0.1	135	0.1	216	0.1	527	0.1	1,711	0.3	5,778	0.8
Total	564,020	100.0	471,024	100.0	507,850	100.0	543,727	100.0	645,978	100.0	770,096	100.0

emphasis, naturally, has been on keeping motive power out on the road in revenue service and the efforts toward that end are now a matter of record.

The characteristics of modern motive power that make this possible are primarily the introduction of such improvements as the integral locomotive bed, the use of anti-friction bearings and the development of mechanical lubrication. These have so simplified the job of engine terminal maintenance and contributed to the reduction of failures on the road that there is no comparison whatsoever between steam motive power of today and that of 20 years ago.

Considerable study has been given to the problem of improving engine terminal operations over the last four or five years and it is fortunate that these investigations were initiated in sufficient time for the roads to profit by them during this war period. It is rather difficult to say whether the actual reduction in locomotive terminal time has been due primarily to facilities or methods of operation. Terminal facilities have been constantly improved to meet the needs of a changing character of service and motive power but it is possible that the improvement which has been reflected most in the satisfactory performance results of the past year or two is that of changes in methods.

A recent survey of terminal operations with the idea of determining what *might be done* to cut down non-revenue locomotive time resulted in developing many reasons why non-revenue time *has been* cut down. The principal factors which have been responsible for this are: (1) increased cooperation between mechanical and transportation departments in the matter of anticipating power due at terminals, and the time that power will be ready for service; (2) detailed checks at terminals to determine increases in time in order to find the cause of the increases and apply a remedy; (3) installation of coal- and ash-handling facilities at strategic points for the handling of switching power in order to keep main terminals free for the handling of road power; (4) immediate handling of the locomotive on arrival at receiving track; (5) prompt movement into the enginehouse where such movement is necessary; (6) careful scheduling of repairs and boiler washing in relation to federal inspection in order to reduce to a minimum the number of locomotives out of service at one time; (7) quick outbound movements from enginehouses in plenty of time to provide fuel, water, tools and supplies before the scheduled departure time; and (8) maintenance of adequate forces to handle the maximum number of locomotives in a peak period; including adequate supervision for the proper handling of such forces.

A consideration of major importance is that of reliability of service while the locomotive is out on the road. It has been found by many roads that in the zeal to cut terminal time, insufficient time has been allowed for proper inspection, servicing and repairs with the result that road failures occur. Recognition of the fact that the ultimate objective is reliable revenue service has contributed immeasurably to high locomotive utilization.

The Diesel-electric locomotive has made a definite place for itself in the sphere of freight transportation. As short a time as five years ago there might have been some question as to whether this type of motive power, which had acquitted itself so admirably in passenger service, was an economically sound facility for freight service. Today that question seems to be answered.

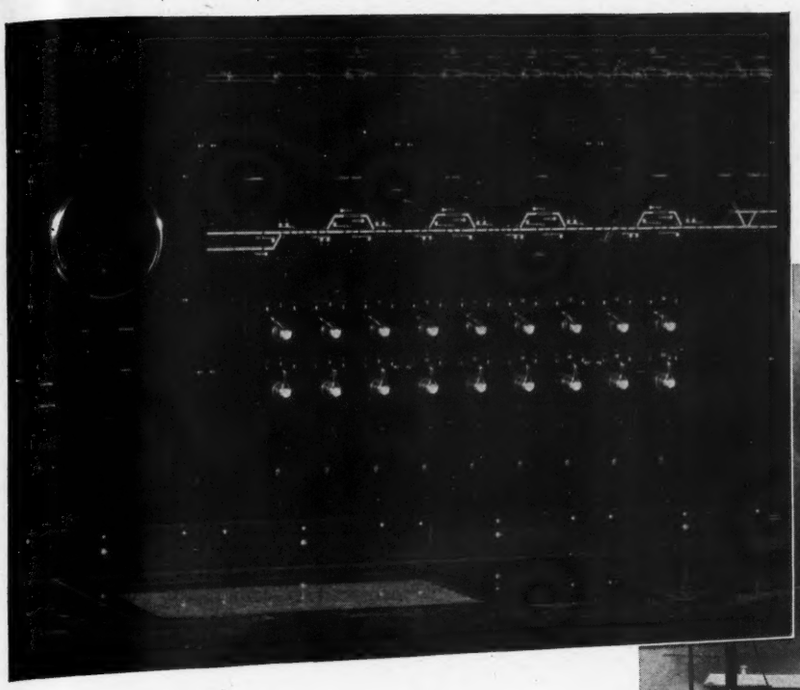
At the risk of becoming involved in a discussion of the relative merits of motive power for freight service the statement can be made that steam, electric and Diesel-electric locomotives each have distinct advantages with respect to specific economic, operating or mechanical factors. Transportation engineers will at least not disagree upon the premise that regardless of operating or mechanical advantages if the economics of the application of a specific type of motive power are unsound there is reason for questioning its justification. Conversely, in the long run, each type of motive power will find its place in a specific class of service where, all other things being equal, the economics of its application are sound. A consideration of merits on any other basis than this is not in the best interest of the ralroads.

In spite of the curtailed deliveries of wartime, the Diesel-electric locomotive has made sufficiently rapid strides that the annual mileage, in freight service, has increased tenfold from 1940 to 1942. At the end of 1941 there were less than 40 freight units of that type in service while today there are 295 in service and on order. Table II shows a six-year comparison of freight service mileage for three types of locomotives.

What of Future Motive Power Policies?

Mechanical and operating officers need no longer ask themselves whether or not the older locomotives should be continued in service after the present emergency has ended. Right now we are in a situation where anything that will run must run and economic considerations are of secondary importance. The amazing performances of modern steam power in handling the bulk of the traffic load on many roads have supplied the answer to the question concerning obsolete power. The high availability and the flexibility of Diesel-electric locomotives have demonstrated the type of competition the steam locomotive must deal with. The high traffic loads in electrified territories have at last permitted the most efficient utilization of the electric locomotive and have made its outstanding advantages, where traffic volume is high, stand out in bold relief.

American railroads have proved to themselves that they have the tools with which to meet post-war traffic competition at a cost which their competitors will find it most difficult to meet. If the proponents of steam motive power do not now recognize the initial advantages of low first cost; a plentiful fuel supply; the possibilities of the development of the turbine locomotive and changes in operating methods to increase availability then it must remain for the Diesel-electric locomotive to carry a steadily increasing part of the burden of post-war competition.



Above — This C.T.C. Machine Controls 89 Miles of Single Track

Below—C.T.C. Reduces Delays on Sidings and Saves Fuel

Signals Keep Freight Trains Moving

Increase average speeds by reducing delays, thereby improving utilization of tracks, locomotives and cars

MODERN signalling is in a very practical sense the application of time-and-motion analysis to the problems of war-time railroad transportation. In terms of customer requirements and satisfaction, modern signaling reduces hazards to goods in transit, increases transportation capacity to meet peak emergencies, and facilitates dependable distribution to all sections of the country in shorter over-all periods of time between points of origin and destination.

In terms of railroad management, modern signaling intensifies the productive use of existing facilities—tracks, locomotives and cars,—by enabling higher average over-all speeds to be effected, not by increasing maximum permissible speeds but rather by minimizing the number of avoidable train stops and delays.

The war has created an enormous increase in freight traffic. Civilian passenger travel has likewise increased, while the transportation of armed forces has risen far beyond any previous level. Whereas previously, passenger trains were given preference over freight trains, troop trains and even certain freight trains now take precedence, so that practically all trains must be kept moving, rather than allowing some to accumulate delays.

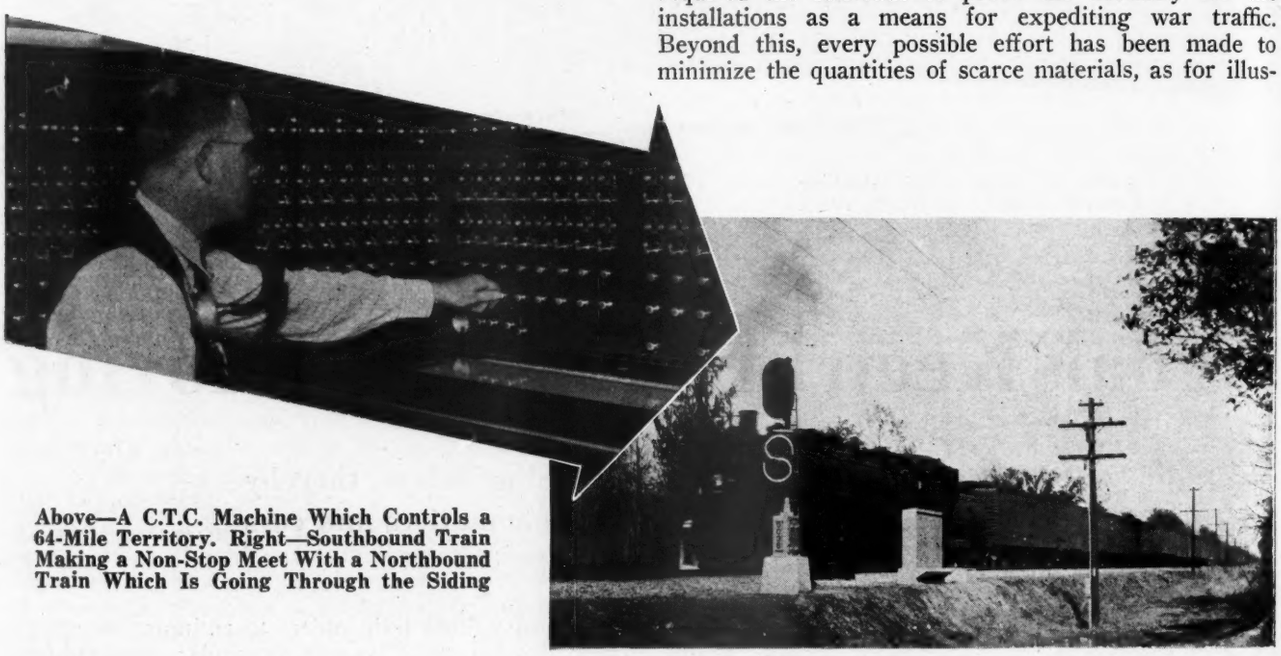
It has been the long established practice to authorize train movements by the time-table system which includes the use of written train orders to authorize the movement of extra trains, as well as regular trains running off schedule. With the present volume of traffic, many extra trains are being operated, while more of the regular trains than usual are running late. Under these circumstances, trains may not make the progress anticipated by the dispatcher when he issued the orders. As a result, new orders must be issued, which requires much time and leads to lost motion, with trains waiting on sidings in the meantime.

The application of time-and-motion analysis to these problems leads to the installation of centralized traffic control, by means of which semi-automatic signals, controlled from a central point, are used to authorize trains to move, thereby superseding time tables and train orders, while an illuminated diagram on the control machine indicates the location of and progress being made by each train. By a flip of his finger, the man in charge of the control machine can clear a signal at a remote point to direct a train to keep rolling at speed, or he can operate power switches and signals to direct it to enter or depart from a siding. By providing sidings longer than the average train, approximately 60 per cent of the meets between opposing trains can be made without either train stopping. By this means the movements of

trains on tracks are being co-ordinated on a time-and-motion basis.

C. T. C. and the War

The practice of operating trains by signal indication is not new, but the war has forced numerous installations of such systems. On multiple track lines with each track equipped with automatic signaling for train movements in the direction of traffic, and with all main line turnouts or crossovers included in interlockings, train movements have been directed for many years with very few occasions for the use of train orders, except when trains must be run against the normal direction of traffic. On the other hand, centralized traffic control is a combination of (1) Automatic signals for providing rear-end and head-on protection as well as minimum safe spacing between following trains, (2) Power operation of switches and crossovers, (3) Semi-automatic signals for authorizing train movements, and (4) The control of all these facilities from one office on an extended territory, which may be an entire engine district or an operating division.



Above—A C.T.C. Machine Which Controls a 64-Mile Territory. Right—Southbound Train Making a Non-Stop Meet With a Northbound Train Which Is Going Through the Siding

In respect to these items, there is nothing new at this time, for all these results were accomplished on installations made as early as 1927. Although the advantage of authorizing train movements by signal indication rather than using train orders was readily recognized, only 229 installations totaling 2,702 track miles were made in the United States during the years 1927 to 1941 inclusive. Many of these projects were on short "bottleneck" sections of line, there having been only one instance where a complete engine district was equipped on 105 miles of the Burlington. The reasons for the hesitancy in making more installations of centralized traffic control before the war are of no interest now; a fact of importance, however, is that a sufficient number of installations were made to prove the benefits under various conditions of train operation, so that railroad executive, operating and signal officers, as well as government authorities in charge of the allocations of critical materials, were in agreement that centralized traffic control offers a logical means for increasing the capacity of a section of railroad quickly.

As the volume of traffic and the demands for overall speed increased during 1941 and 1942, numerous existing C.T.C. territories were extended to include entire engine districts or at least those further parts of districts on which second track or alternate lines are not available; thus several continuous sections of C.T.C. ranging up to 80 to 90 miles in length are now in service. On other divisions where no C.T.C. was previously in service, projects are now underway on complete engine districts, ranging up to 123 to 170 miles in length, three such projects being respectively 127, 233, and 248 miles in length. As a result, providing all these projects are carried to completion this year, more than half as much C.T.C. will have been installed in the two war years 1942 and 1943 as was installed in all the years previous to 1942.

When considering applications for materials for proposed C.T.C. projects, the War Production Board has required the railroads to prove the necessity for the installations as a means for expediting war traffic. Beyond this, every possible effort has been made to minimize the quantities of scarce materials, as for illustration copper wire, where iron line wire is being substituted in some projects. The manufacturers have developed coded track circuits and carrier current line systems as further means for reducing the quantities of line wire, as well as removing restrictions on the distances from control offices to field stations. Much of the detailed construction work formerly done in the field is now done at construction headquarters or in the factories. Numerous other changes have been made in practices to expedite progress in field construction. It is not the intent here to create an impression that the planning of a C.T.C. project, the securing of materials, and the construction are easy, but the difficulties have been and are being overcome on extensive projects.

Complete C.T.C., including power switch and signals, can readily be justified economically on single track lines handling 20 or more trains daily, especially if certain of these trains are bunched in short periods of each day. Where such an installation is needed, freight trains should save an average of 1 minute per mile, and roughly a single track with proper siding arrangements and

(*Continued on page 1040*)

Traffic Grows—Purchases Decline

Threat to transportation in reduced portions of materials allowed railroads for maintaining equipment

WHILE interest in the railroads at this time naturally centers in the astonishing growth of their traffic and in the drama of moving troops and war materials, the job of getting enough materials and equipment to keep them in repair continues to be pressing. This is because the railroads require so much material and because the materials they need have not been plentiful and are becoming scarcer.

The irony of the present railway material situation is that with soaring traffic, both passenger and freight, and intensified use of plant, the railroads were probably never before in as favorable a position, from the standpoint of earnings, to spend liberally for materials and equipment if only they were available. But this is the least concern of the carriers. The real concern is with their ability to maintain uninterrupted service under the

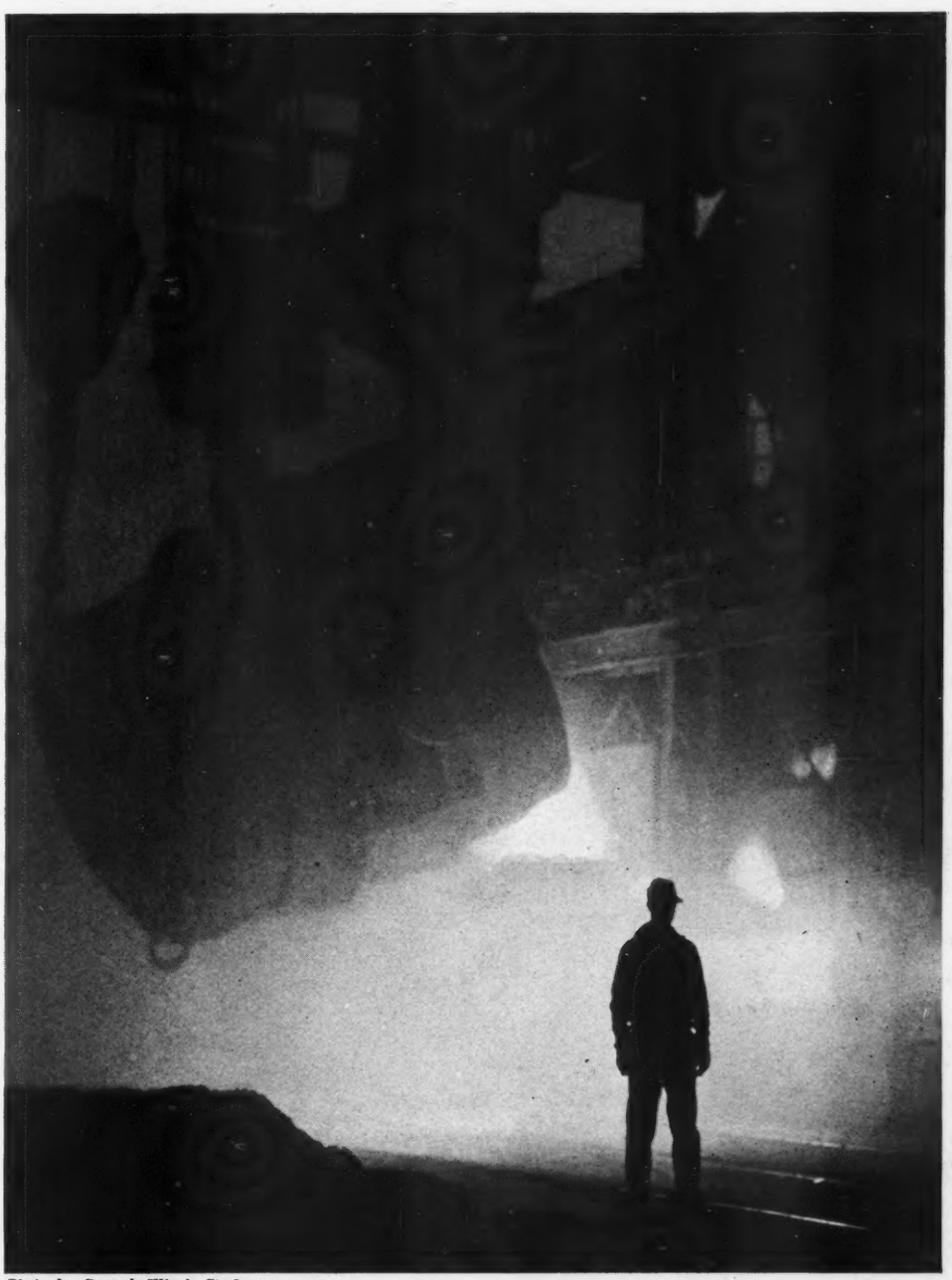
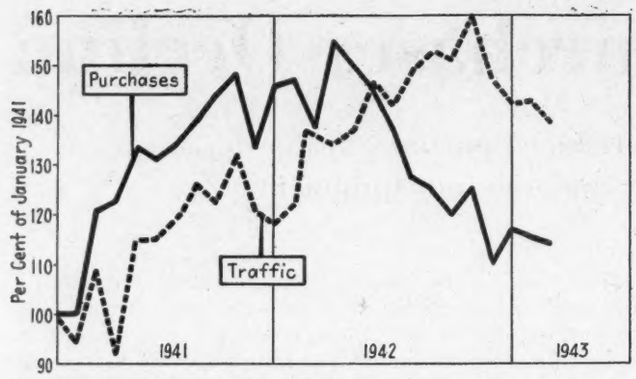


Photo by Carnegie-Illinois Steel

Steel for Ships and Guns Indeed—but also Steel for Railroads to Keep the Wheels Rolling



Comparative Month-to-Month Trends in Purchases of Material from Manufacturers and Gross Ton-Miles of Freight Traffic—Class I Railroads

pounding which equipment and track are now receiving in the war work.

In some ways the railroads have fared better than other consumers not directly engaged in war production. Numerous supply problems have been simplified and the trains have been kept on the go, but how long they will go is what worries the railroads. And it is this question, in view of the place that rail transportation occupies in the present emergency, that distinguishes the railroads among domestic consumers of materials and gives their supply problem an importance beyond that of many ventures and experiments associated with the war effort which are more prominently in the public eye.

Material Needs Large

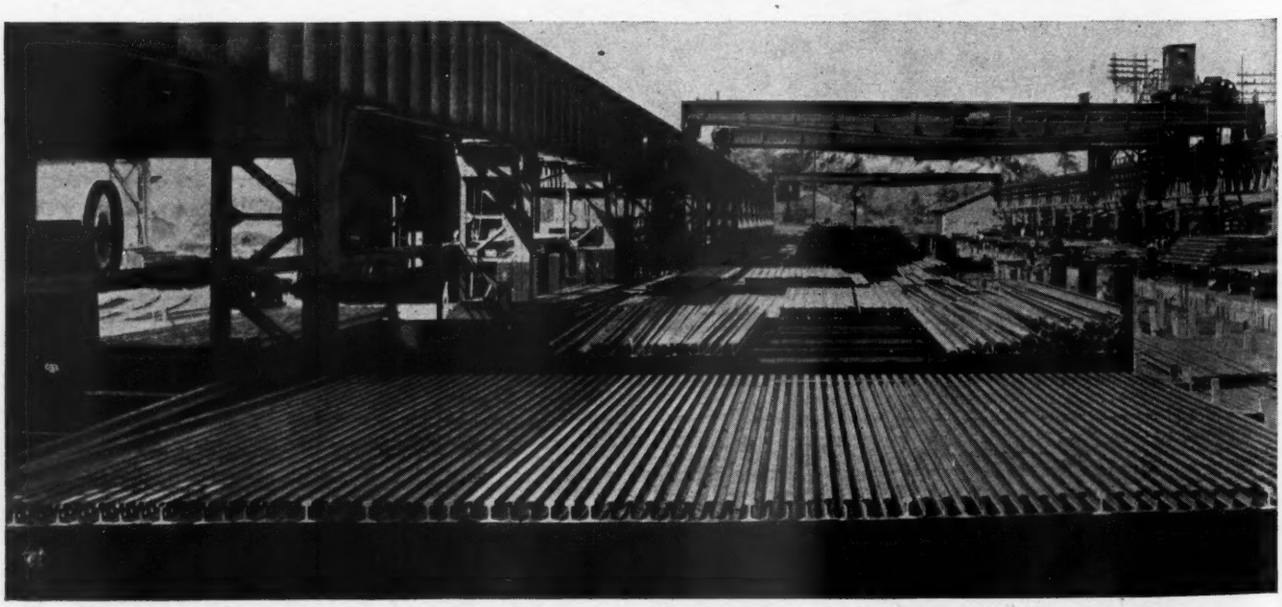
The railroads have long been known as a billion dollar buyer but this is an understatement except in bad years. Purchases by the Class I railroads alone averaged $1,495,000,000 yearly from 1923 to 1925, of which $974,000,000 went for materials from manufacturers; and they averaged $1,319,000,000 yearly from 1926 to 1930, with the materials from manufacturers averaging $925,000,000. In 1941, after years of undermaintenance, their purchases, exclusive of new locomotives and cars, were increased to $1,163,000,000, including $813,000,000 of materials from manufacturers; and last year, the supply bill of the Class I roads was $1,260,000,000, including $835,000,000 of materials from manufacturers.

This expansion of purchases in 1941 and 1942 was in line with the upward trend of traffic and, considered in the light of the increasing severity of the restrictions placed on railway construction and maintenance and on the distribution of materials in 1942, it gives an idea of the huge material requirements of the carriers. Approximately $118,000,000 of forest products, $444,000,000 of iron and steel and $273,000,000 of miscellaneous supplies, including copper, rubber, oil, paints and chemicals, were purchased last year and this, again, was exclusive of materials purchased by switching and terminal companies, short lines and private car companies and most of the material required for building new locomotives and cars. Railroad equipment is noted for its durability, but the country's rail transportation would be in serious trouble this year if the railroads had not obtained this material.

As large as were aggregate expenditures for materials in 1942, however, purchases from manufacturers, dollar for dollar, were $139,000,000 below the yearly average from 1923 to 1925; $90,000,000 below the average from 1926 to 1930; and $130,000,000 below the corresponding purchases in 1929, when the railroads performed less transportation than was handled in 1942. Although railroad traffic was larger in 1942 than in 1941, moreover, the materials from manufacturers were only $21,000,000, or 2.5 per cent, larger than in 1941—an increase which was more than accounted for by increased material costs; and the purchases of iron and steel were $18,000,000 less than in 1941. With the principal exception of fuel, therefore, the railroads actually obtained no more material, and probably less material, by weight last year than in the previous year.

Twelve Months of Declining Purchases

The disturbing aspect of the railway material situation, however, lies in the fact that the flow of materials to the railroads has been declining since March, 1942, although the volume of freight traffic, and therefore the wear and tear on track and equipment, has continued upward except for seasonal recessions at the close of



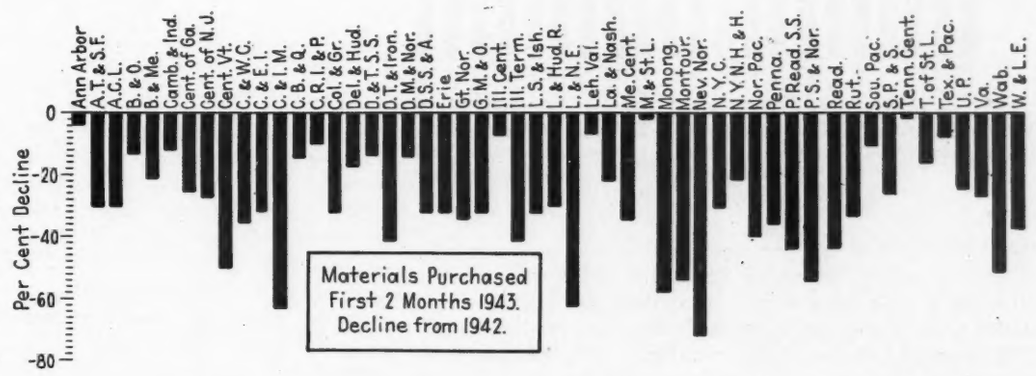
The Tennessee Coal and Iron Company Rail Yard Displays a Commodity

last year. Dollar for dollar, aggregate expenditures by the Class I railroads for materials, exclusive of rail, ties and fuel, declined from $71,172,000 in March, 1942, to $52,579,000 in December, a decline of 27 per cent. They were also less each month after June, 1942, than the corresponding purchases in 1941, being 41 per cent less in December, 1942, than in December, 1941, with the result that aggregate expenditures for materials in the last 6 months of 1942, totalling $322,830,000, were 17 per cent below the corresponding purchases in both the first half of 1942 and the last half of 1941. A total of 58 of 76 Class I railroads reported smaller purchases received in the last 3 months of 1942 than in the last 3 months of 1941. By contrast, the railroads handled 904 billion gross ton-miles of freight traffic, including locomotives, in the last half of 1942, which was an increase of 11.3 per cent over the first half of 1942, and an increase of 21 per cent over the last half of 1941.

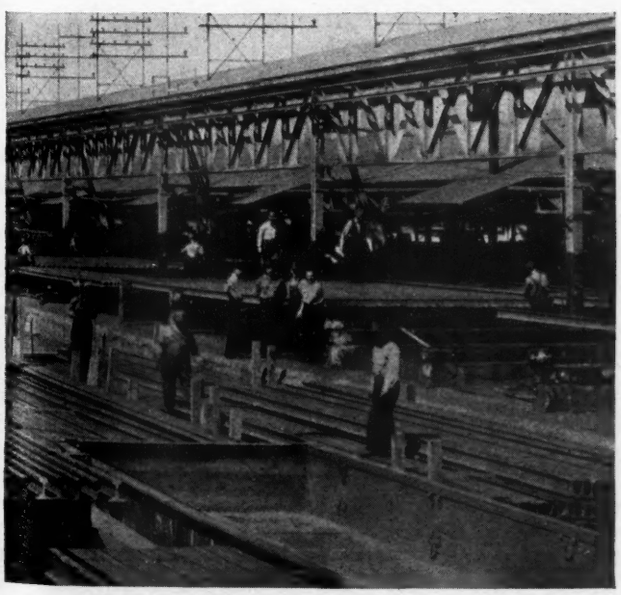
The railroads appear to have received more materials in the aggregate in March of this year than in January or February, which is in line with the usual trend. However, January and February of this year showed no improvement over the delivery situation at the close of last year, and the combined purchases in the first three months were sharply less than the corresponding purchases in the first quarter of 1942. Subject to revision with more complete returns, materials, exclusive of fuel, rail and ties, received by Class I railroads in January, February and March of this year totalled $168,257,000, which was a decline of $35,191,000, or 17.5 per cent, from January, February and March, 1942; while the purchases, exclusive of fuel, amounted to $194,057,000, a decline of 15.5 per cent.

Declines in Purchases Widespread

In January and February, 54 of 81 railroads obtained less material than in January and February, 1942, the declines exceeding 25 per cent on 37 railroads and being 50 per cent or more on 16 roads. The decline was 31 per cent on the Atchison, Topeka & Santa Fe and the Atlantic Coast Line; 11 per cent on the Baltimore & Ohio; 23 per cent on the Boston & Maine; 24 per cent on the Central of Georgia; 27 per cent on the Central of New Jersey; 50 per cent on the Central Vermont; 33 per cent on the Chicago & Eastern Illinois; 37 per cent on the Chicago & North Western; 45 per cent on the Chicago, St. Paul, Minneapolis & Omaha; 43 per cent on the Detroit, Toledo & Ironton and the Duluth, South Shore & Atlantic; and 37 per cent on the Erie. It was 33 per cent on the Great Northern and the Gulf, Mobile & Ohio; 61 per cent on the Lehigh & New England; 24 per cent on the Louisville & Nashville; 36 per cent on the Maine Central; 12 per cent on the Missouri Pacific; 29 per cent on the New York Central; 21 per cent on the New York, New Haven & Hartford; 40 per cent on the Northern Pacific; and the decline was 37 per cent on the Pennsylvania; 46 per cent on the Reading; 10 per cent on the Southern Pacific; 26 per cent on the Spokane, Portland & Seattle; 25 per cent on the Union Pacific; 27 per cent on the Virginian; 50 per cent on the Wabash; and 39 per cent on the Wheeling & Lake Erie.



Decline in Purchase of Maintenance Materials in January and February, 1943, from the Same Months in 1942



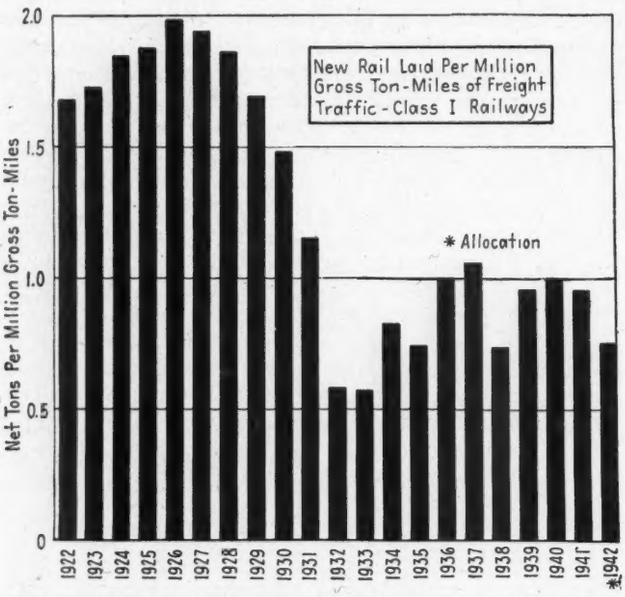
Which the Railroads Need Much More Of

Except for coal, which the railroads have been encouraged to store, and also with the exception of brick, sand, cement and similar building materials, together with oils, stationery and materials of secondary importance, practically all purchases by the railroads are now subject to war laws which control inventories as well as the quantities which may be purchased or the priority ratings which may be used in obtaining them. This control over the inventories—of manufacturers as well as railroads—explains to some extent the recent decline in purchases, for railroads bought liberally when the war began and were long on many materials when the "squeeze" came. This was especially true of materials which the railroads and car builders acquired in good faith for locomotive and car building programs which the government stopped after large quantities of the materials had been fabricated and delivered. For the most part, however, and to an increasing degree, railway

purchases have declined because of the scarcity of materials for all consumers and the increasing amounts of available supplies being taken by the government for its own use.

Outlook Bad

Some defense projects which required huge quantities of lumber and other materials have been completed and work on other government projects has been stopped, which has relieved the demand for materials in some places. Production has also been increased by new



Yearly Relation of New Rail Laid in Tons to Freight Traffic in Million Gross Ton-Miles, Including Locomotives—Class I Railroads

facilities for making pig iron and rolled steel and by extending work schedules in many industries from a 40-hour to a 48-hour week. Hoarding has been brought under control and surplus stocks have been redistributed. The demand for materials for military purposes has been intensified in other ways, however, and the situation for the railroads has been further complicated by shifts of manpower from the production of some railway materials, including cross ties, to industries where the pay is higher, and more recently by the diversion of increased

Yearly Purchases—Class I Railroads—1923 to 1942

	Fuel (000)	Forest Products (000)	Iron and Steel (000)	Other Material (000)	Total Material (000)	Total less Fuel* (000)
1923	$617,800	$232,511	$464,955	$423,437	$1,738,703	$1,120,903
1924	481,656	180,872	365,610	324,917	1,353,055	871,399
1925	462,620	170,305	419,254	339,863	1,392,042	929,422
Av.	520,692	194,563	416,606	362,739	1,494,600	973,908
1926	473,353	186,291	507,302	392,085	1,559,031	1,085,678
1927	438,821	175,729	432,604	348,774	1,395,928	957,107
1928	384,608	160,794	397,544	328,395	1,271,341	886,733
1929	364,392	157,551	437,840	369,752	1,329,535	965,143
1930	306,500	134,600	329,700	267,700	1,038,500	732,000
Av.	393,535	162,993	420,998	341,341	1,318,867	925,332
1931	244,500	76,250	202,100	172,150	695,000	450,500
1932	178,250	52,200	100,550	114,000	445,000	266,750
1933	179,150	41,185	112,685	124,730	457,750	278,600
1934	217,294	64,271	159,758	158,901	600,224	382,930
1935	232,723	58,037	165,150	137,217	593,127	360,404
Av.	210,383	58,389	148,049	141,399	558,220	347,837
1936	271,397	76,770	278,223	175,914	802,304	530,907
1937	293,540	104,302	356,367	204,727	958,936	665,396
1938	243,889	57,156	152,411	129,355	582,811	338,922
1939	257,879	70,412	278,787	163,295	770,373	512,494
1940	273,677	82,926	320,390	178,980	855,973	582,296
Av.	268,076	78,313	277,236	170,454	794,079	526,003
1941	349,848	105,239	461,785	246,157	1,163,029	813,181
1942	425,712	117,743	443,847	273,098	1,260,400	834,688
Av 20 yr.	334,880	115,257	319,343	243,672	1,013,152	678,272

* Purchases from manufacturers.

First Quarter Purchases—Materials and Fuel

1943*	Fuel (000)	Rail (000)	Cross Ties (000)	Other Material (000)	Total (000)	Total less Fuel (000)
January	$39,957	$4,404	$4,078	$52,115	$100,554	$60,597
February	41,847	3,976	4,375	51,366	101,564	59,717
March	48,757	3,240	5,727	64,776	122,500	73,743
3 Mos.	130,561	11,620	14,180	168,257	324,618	194,057
1942						
January	32,803	3,075	4,895	69,060	109,833	77,030
February	31,945	3,817	4,837	63,216	103,815	71,870
March	33,976	3,770	6,130	71,172	115,048	81,072
3 Mos.	98,724	10,662	15,862	203,448	328,696	229,972
1941						
January	27,261	3,464	3,472	45,457	79,654	52,393
February	27,901	5,297	3,514	43,467	80,179	52,278
March	31,121	5,168	4,087	54,070	94,446	63,325
3 Mos.	86,283	13,929	11,073	142,994	254,279	167,996
1940						
January	24,977	3,529	4,128	45,593	78,227	53,250
February	24,219	4,815	3,928	39,939	72,901	48,682
March	21,880	6,043	4,634	42,655	75,212	53,332
3 Mos.	71,076	14,387	12,690	128,187	226,340	155,264
1939						
January	23,377	483	2,445	27,374	53,679	30,302
February	23,063	2,934	2,632	26,721	55,350	32,287
March	24,361	4,631	3,660	33,467	66,119	41,758
3 Mos.	70,801	8,048	8,737	87,562	175,148	104,347

* Subject to revision.

Steel for Railroads

"The reason that the railroads won't get all the steel they requested is that there is not enough to go around. Of the six largest steel consumers, the railroads in the third quarter will take the largest reduction relatively. This fall, since we cannot expect the railroads to continue passing miracles indefinitely in meeting the ever-rising traffic demands, the railroads are going to be in much greater trouble. Their equipment is wearing out. They are being pushed far beyond the limits of performance which can be reasonably expected. They will have to get along."

—H. G. Batcheller, Director, Steel Division, WPB.

amounts of steel for farm machinery and for oil wells and pipe lines in this country and for shipment to other countries, including South America.

For months, the railroads have been drawing heavily on their cross tie inventories which are now the lowest in years. Railroads have been striving to obtain ties from producers whom they never recognized before and have made wide departures in specifications to obtain them. Tie production, however, has been reduced practically to nothing in some sections of the country—a result, in part, of indecision and delay in Washington last year over price regulations—and many roads don't know where the ties they will need in 1944 are coming from. This situation is also true to some extent with lumber for bridges and cars—Pacific Coast lumber still requiring releases from the Government's central purchasing agency before a stick can be shipped to any railroad, other softwoods being covered by regulations severely

limiting what railroads can have, and large lumber dealers actively soliciting lumber even from operators of portable mills who had little or no standing in the lumber trade a few years ago. A few roads have found comfort in the recent closing of the branch of the Government's central purchasing office in San Francisco, Calif.

More Rail Is Badly Needed

In a recent conference on war problems, Joseph B. Eastman, director of the Office of Defense Transportation, "agreed entirely" with Ralph Budd, president of the Chicago, Burlington & Quincy and former transportation member of the advisory committee to the Council of National Defense, on the vital need for more rail than the railroads have been getting. As recently as April 29, however, WPB announced that requests by the 16 Claimant Agencies for finished carbon steel for third quarter deliveries, totalling 20,000,000 tons, exceeded the supply available for allocation by 6,000,000 tons, or 40 per cent, and that the railroads would have to be cut 40 per cent, as compared to a 20 per cent reduction of Army and Navy estimates, a 22 per cent reduction of the Maritime Commission's estimates and a 32 per cent reduction of the Lend-Lease Administration's requests. This was before all the railroads had even reported their requirements in detail and with the full realization by the War Production Board, as expressed by the Director of the Steel Division, "that railroad equipment is wearing out, that railroads are being pushed far beyond the limits of performance, which can be reasonably expected, and are going to be in much greater trouble."

The Government's Obligation

"The Government itself is not without its obligations to the transportation system. The tight curb on the expansion of facilities can be made so tight that it will do vital harm to the war effort. Transportation is the blood brother of production and modern warfare. They cannot live and thrive without it, and it must be adequate and efficient to meet their needs. This is a point of view which my office is constantly presenting to the War Production Board, and it is responding, not always to our satisfaction, but in some considerable degree."

—Joseph B. Eastman, Director, ODT.

The demand for carbon steel by all claimant agencies for first quarter delivery exceeded the available supply by only 17 per cent. Last November, the War Production Board was notified by ODT that railway requirements for 1943 would include 900 new locomotives, 73,500 new freight cars, 1,800,000 tons of new rail, 1,080,000 tons of rail fastenings and 1,312,000 tons of carbon and cast steel for maintenance and equipment. The program, as approved at that time, was reduced, however, to 386 locomotives, consisting of 250 steam and 36 Diesel road units to be built in the first 8 months of 1943, and 100 Diesel switching locomotives to be built in the first 6 months of 1943; 20,000 freight cars to be built in the first 6 months; and 480,000 tons of rail, 288,000 tons of track fastenings and 333,000 tons of steel for repairs to equipment for delivery in the first 3 months. This was 514 fewer locomotives and 53,500 freight cars than were requested.

Purchases—First 2 Months of Year*

	1943	1942	Increase Per cent
Alton	$697,975	$527,093	32
Alton & Sou.	41,819	36,170	16
Ann Arbor	63,271	65,327	– 3
A. T. & S. F.	3,587,991	5,228,704	–31
A. B. & C.	94,960	68,468	39
A. C. L.	1,750,216	2,546,103	–31
B. & O.	4,723,683	5,300,066	–11
Bang. & Aroo.	91,500	82,349	11
B. & M.	863,951	1,124,305	–23
Cam. & Ind.	13,956	15,799	–12
C. of Ga.	347,712	460,030	–24
C. of N. J.	766,818	1,051,243	–27
Cent. Vt.	70,114	138,993	–50
Char. & W. Car.	66,458	102,523	–35
C. & O.	1,823,823	.....	..
C. & E. I.	290,335	433,333	–33
C. & I. M.	36,337	108,954	–67
C. & N. W.	1,751,040	2,790,395	–37
C. B. & Q.	2,692,562	3,162,258	–15
C. G. W.	282,333	441,674	–36
C. I. & L.	115,761	113,563	2
C. R. I. & P.	1,906,849	2,128,665	–10
C. St. P. M. & O.	250,868	454,443	–45
Colo. & Sou.	298,238	220,027	36
Col. & Green	18,493	31,360	–41
D. & H.	664,513	803,713	–17
Det. & Mack.	11,597	9,852	18
D. & T. S. L.	29,666	34,523	–14
D. T. & I.	71,674	125,232	–43
D. M. & I. R.	313,046	364,383	–14
D. S. S. & A.	34,211	59,562	–43
E. J. & E.	388,420	318,109	22
Erie	1,343,444	2,131,357	–37
F. E. C.	278,500	237,389	17
Ft. W. & D. C.	253,829	259,344	– 2
G. N.	2,200,317	3,293,233	–33
G. M. & O.	317,462	475,815	–33
I. C.	4,082,649	4,402,899	– 7
Ill. Term.	114,705	192,798	–41
K. C. S.	752,279	424,475	77
K. C. Term.	89,734	83,614	7
L. S. & Ish.	13,154	19,547	–33
L. & Hud. Riv.	36,301	51,460	–29
L. & N. E.	28,381	73,313	–61
L. V.	817,526	872,942	– 6
L. & A.	203,636	119,829	70
L. & N.	1,773,929	2,327,035	–24
Me. Cent.	211,672	331,337	–36
M. & St. L.	174,098	175,200	– 1
Miss. Cent.	21,983	12,288	79
Mo. & Ark.	24,535	18,109	35
M-K-T	1,261,435	739,626	71
M. P.	3,078,464	3,494,153	–12
Monongo	26,246	63,061	–58
Montour	19,233	42,309	–55
N. C. & St. L.	512,975	432,575	19
Nev. Nor.	5,867	21,004	–70
N. Y. C.	8,995,586	12,648,915	–29
N. Y. C. & St. L.	790,859	.....	..
N. Y. N. H. & H.	1,806,968	2,285,955	–21
N. Y. O. & W.	133,799	92,587	45
N. P.	1,560,663	2,589,201	–40
N. W. P.	14,131	11,851	19
P. R. R. and L. I.	11,489,548	18,260,076	–37
Pa.-R. S. L.	40,249	73,487	–45
P. M.	417,697	.....	..
Pitts. & Shaw.	12,366	11,047	8
Pitts. Sh. & Nor.	12,891	30,207	–57
Pitts. & W. Va.	93,641	.....	..
Reading	1,399,561	2,582,724	–46
R. F. & P.	401,728†	341,220†	18
Rutland	41,859	63,722	–34
St. L.-S. F.	1,645,248	1,534,928	7
Southern	4,144,517	3,660,864	13
S. P.-Pac. Lines	4,136,832	4,590,296	–10
S. P. & S.	216,738	291,559	–26
Tenn. Cent.	90,227	93,626	– 4
Term. of St. L.	220,800	262,620	–16
T. & N. O.	1,068,422	1,000,970	7
T. & P.	1,037,471	1,127,877	– 8
U. P.	6,087,022	8,114,473	–25
Utah	8,740	9,337	– 6
Virginian	541,875	745,780	–27
Wabash	895,515	1,808,078	–50
W. M.	479,128	457,438	5
W. & L. E.	216,254	355,935	–39

* Materials received, exclusive of fuel, rail and cross ties.
† Includes rail and cross ties.

Supply Forces on the Job

Railroads are attacking the supply problem with the same thoroughness that they have met the problem of train operation. Supply and maintenance forces have not only been informed repeatedly of the reasons why material is no longer plentiful and reminded of the necessity for extreme conservation, but have been

schooled in practical routines of economy. Material specifications have been changed to reduce the raw materials in hundreds of items used in the maintenance and repair of railway equipment and to permit the use of available sizes. Opportunity is being constantly sought for substitutions of one kind of material for another; requirements in design have been eliminated; patching is prevalent in repair work; and cost of reclamation is no longer a ruling factor in the enlarged salvage activities.

Railroads have been praised for their effectiveness in gathering scrap needed to make new steel and for phenomenal tonnages of old rail and track fastenings they furnished for army and navy construction.

Accord With Government Agencies

Notwithstanding the many impractical and often wholly unworkable provisions which zealous but inexperienced authors of war laws wrote into many of the regulations affecting railway materials, and notwithstanding exasperating delays in obtaining relief from unwise or unduly burdensome restrictions on shipments to railroads or the use of materials by railroads, railway supply personnel have maintained a co-operative spirit in preparing the detailed bills of material and the voluminous statistical information required by the war boards and in formulating programs and procedure. Railroad supply departments, being among the carriers own largest shippers, have also had their job to do in using fewer cars for company materials, reducing cross-hauling of freight, cutting empty mileage, increasing the load per car and releasing equipment promptly.

The WPB Organization

The Transportation Equipment Branch of the War Production Board is now a well co-ordinated organization almost entirely staffed with specialists on leave from railroads and railway supply industries, and this is also true of the Office of Defense Transportation. Since January, the railroads have had a more direct and sympathetic representation on the War Production Board than previously as a result of the appointment of ODT to act as a Claimant Agency in connection with all requests for allocations of transportation material and equipment. Last month, the representation of the railroads was further consolidated when the Director of ODT was made a vice-president of the War Production Board.

This appointment has been welcomed by the railroads as a much-needed and long-overdue step in meeting the supply problem.

Railroad Status Unchanged

The railroads, however, still occupy the status of civilians instead of an integral part of the war effort and, therefore, in military parlance, rate a much smaller division of available materials proportionately than the Army, Navy, Maritime Commission, Board of Economic Welfare and Lend-Lease operations. As civilians, they are also being less favored in the administration of priorities for vital materials and are at a distinct disadvantage with the military branches as to the time within which they can place their orders with manufacturers, with the result that the carriers and their affiliates in transportation are constantly receiving less material in relation to their needs. The folly of this trend will become apparent if train wrecks, resulting from material failures, should increase and disorganize the present orderly and expeditious movement of raw materials to war industries and troops and finished material to battle fronts.

In a recent statement, Director Eastman of ODT said: "The curb on the railroads can be made so tight that it will do vital harm to the war effort. Transportation is the blood brother of production and modern warfare. They cannot live and thrive without it, and it must be adequate and efficient to meet their needs." At a time when the War Production Board is under extreme pressure from all claimants, including farmers and other political minorities, for materials, it is not only necessary for the railroads to use their resourcefulness to the utmost in getting along with the least amount of material, but to press vigorously and continuously, though intelligently, for every pound and foot of material they need. The wheels must be kept rolling.

Signals Keep Freight Trains Moving

(*Continued from page 1034*)

complete C.T.C. should provide at least 75 per cent of the capacity of a double-track line without C.T.C.

When considering the possibility of installing signaling on extensive sections of one railroad, an executive agreed that the new facilities would solve the problem of expediting traffic during the war, but he was afraid that the carrying charges and maintenance expenses for the signaling would not be justified by a normal volume of traffic after the war. A convincing answer was that the records proved that the authorization of train movements by time table and train orders had not been satisfactory in normal times, from the standpoint of train delays as well as accidents, and that if manual block should be adopted, with rules which must now be applied to comply with regulations of the Interstate Commerce Commission, even the normal number of trains could not maintain satisfactory performance. For these reasons, train operations on many divisions will not revert to the previous conditions after the war closes, and in view of the fact that signaling must be provided within the near future, railway managements are recognizing more and more that it is a logical procedure to install it now and thereby secure the benefits in handling the war traffic.

In general, a major portion of the benefits of C.T.C. is the elimination of the train delays inherent in the time table and train order system. If materials are not available to permit the installation of a complete system, it may be possible to omit the power switches at some or all the passing track switches, in which cases spring switches could be installed to save time when trains are pulling out of sidings. Such a C.T.C. installation, including semi-automatic signals for authorizing train movements, has been in service for more than a year on 60 miles of single track on the Milwaukee which normally had been handling about 14 trains daily. On this territory, in brief, and regardless of increases in wartime traffic, train performances has been improved; passenger trains, when late, make up about 8 minutes, and freight trains about 20 minutes. Thus C.T.C. can be adapted to the requirements of train operation on either heavy traffic or medium traffic lines.

Many Supply Companies Have Been Repeat Winners of the Army-Navy "E" Award

Supply Companies Do Their Part

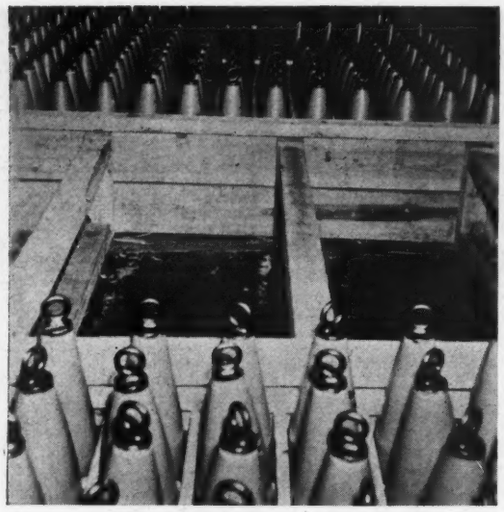
Plants, talents, finances and personnel throughout the industry are enlisted in the drive for victory

ALTHOUGH the production of several billion dollars worth of war materials constitutes the major output of the railway supply industry today, equally important contributions made by it to our war effort are the flow of products that keep the railroads running and numerous activities in other directions which aid the railroads and the war. Notable among the latter are the saving of freight cars through improved loading and shipping methods, the creation of new products for the railroads, the enlistment of personnel in the armed forces and the purchase of war bonds.

The flow of materials from the supply industry, which enables the railroads to perform the vital part they are playing in the war, is reflected in the purchases made by the railroads. In 1942, these companies provided the railways, the Pullman Company and the private car lines with approximately $1,333,127,000 of materials and fuel while in addition they built about $300,000,000 of locomotives and freight and passenger cars.

The conservation of freight cars to increase the railroads' supply is another contribution to the war by the supply companies and many examples could be cited to show how the rerouting of raw and finished materials and improved loading methods have released cars for other work. The Timken Roller Bearing Company, for example, in 1941 adopted a program for releasing freight cars for other use, and for a full year this company completely eliminated demurrage on all freight cars bringing material into or taking material out of its ten plants. In this period, a total of 20,395 cars were held an average of 29 hr. 29 min. or 18 hr. 31 min. less per car than the free time allowed.

The Pullman Standard Car Manufacturing Company has also been particularly active in the protection of the car supply. When the War Department recognized the vital need for the turret type combat tank and asked Pullman-Standard to begin delivery of this type at the earliest possible date, the company worked out a system of highway truck operation which relieved the railroads



To Make Better Use of Cars Available for Shipping Shells, the Butler Plant of Pullman-Standard, with the Approval of the Ordnance Department, Changed from Vertical to Horizontal Loading

of the necessity of establishing an extended inter-subcontractor conveyor service. The problem that confronted the company was to shift production at once to a new tank which required the machining of parts to unusually close tolerances. None of the company's plants was equipped with the required machine tools and the Army could not wait until a new plant could be equipped. The only machine shops with the required tools were in Indiana, Ohio and Michigan, miles apart. While these shops were all served by railroads, Pullman-Standard realized that many cars and locomotives would be required in this service if the railroads were to be used as a "conveyor system."

Because of these circumstances, the company decided to use highway trucks until a new plant could be equipped. Under the set-up, a number of highway trucks were kept in constant movement, conveying large castings in a progression of operations which formed a circuit from Hammond, Ill., to points in Indiana and Ohio, to Detroit, Mich., and thence back to Hammond where they were placed in the finished tank. As a result of the employment of these trucks, it was not necessary to divert several hundred freight cars from other services during the months required to equip the new shop.

On another occasion the Butler plant of Pullman-Standard saved about 1,000 cars over a period of two years by changing the method of forging shells. By adopting horizontal forging, it was possible to reduce the excess material put into the casting and the number of rejected pieces, with the result that about 42,000 fewer gross tons of material had to be transported. On still another occasion, this plant secured permission from the War department to load shells horizontally instead of vertically so that 1,380 instead of 900 shells could be placed in a car, effecting a saving of 380 cars a year.

New Materials and Methods Developed

The railway supply companies have encouraged their employees to enlist in the armed forces, have sponsored the sale of war bonds and have donated their talents in the development of new methods of fabrication and design and the discovery of substitute materials to conserve the supply of vital substances. The American Brake Shoe Company, which has centered its current energies almost exclusively on the production of shell forgings, parts for tanks, jeeps, guns, ships, airplanes and transportation and construction equipment, has directed its physical and metallurgical research laboratories and its experimental foundry to research concerned with war production problems.

Fairmont Railway Motors, Inc., is one of many companies which have replaced vital materials with other substances. In its rail motor cars, about 95 per cent of all aluminum has been replaced, effecting a saving of approximately 167 lb. of this material on each car. Plastics also are being used.

R. G. LeTourneau, Inc., has cut down the crude rubber content of the tires employed on its Carryall scrapers, effecting a saving of 500,000 lb. of rubber a year. In its 18-by-24 tires, approximately 60 lb. of rubber are being saved in the casing, 9 lb. in the tube and 3 lb. in the flap.

The American Locomotive Company in 1942 sponsored the 762nd Engineer Railway Diesel Shop battalion of the U. S. Army and encouraged its personnel from all phases of its operations, including clerical help, to enlist in order to insure a complete unit that would be familiar with every aspect of Diesel locomotive maintenance. The Caterpillar Tractor Company also sponsored a Corps of Engineers Heavy Shop company, composed chiefly of skilled men from the company's Peoria, Ill., plant. In addition, many companies have paid tribute to enlisted employees by special dedications and ceremonies.

One of the greatest contributions of employees and companies has been the development of new methods of fabrication. The forge division of the American Brake Shoe Company, as an illustration, has pioneered in the production of shell forgings by the "upset" method and as a result saved steel in its two plants in two years sufficient to build 800 medium tanks. The American Welding Company, a subsidiary of the American Car & Foundry Company, which is engaged in hammer and pressure welding operations, received the Army-Navy "E" award for its accomplishments in the production of gas containers for the Chemical Warfare Service of the United States Army. The construction of ships by the Pullman-Standard Car Manufacturing Company is

another example of the ingenuity of the railway supply industry in developing new methods of production.

Still another way in which the railway supply companies have contributed to the war effort is by the collection of scrap. Plants of the General Electric Company salvaged 388,300,000 lb. of scrap for re-use in war production during 1942. Included in the total was 318,500,000 lb. of iron, steel and alloy steel scrap; 31,200,000 lb. of copper, copper alloy scrap and brass; 22,700,000 lb. of lead; 4,300,000 lb. of aluminum and 2,500,000 lb. of zinc.

Volumes of War Materials Produced

Constantly accelerating production, which has exceeded expectation, has been the record of railway supply companies in the production of war materials. Starting from scratch in 1939, when it began work on lend-lease material, the industry has expanded its war work until at the present time it is one of the largest fabricators of war supplies for every branch of the armed forces of the United States and its allies.

Significant of the performance of the railway supply industry are the awards for excellence which it has received and is continuing to win. In some instances the entire roster of plants of individual companies has been the recipient of awards while in other instances individual plants have been repeat winners as many as three times. Repeated governmental recognition has been made of "excellence in production," with the result that plants and employees of the railway supply industry have won every type of award of the Army, Navy and Maritime commission. The emblems of awards possessed by the plants and employees of the railway supply industry include the Navy "E" burgee for "excellence in production," the Army-Navy "E" burgee for "high achievement in the production of war equipment," individual Army-Navy lapel pins, the Maritime "M" burgee and the Victory Fleet flag for "outstanding achievement," the Navy ordnance pennant and the Maritime labor merit insignia for employees.

The diversity of war products being made, differing markedly from those of peacetime, not only reflects the ability of the industry to shift to the manufacture of war material but indicate the technical accomplishments that lie behind the awards of merit. Combat tanks, railway and anti-aircraft gun mounts, gun barrels, barbettes, shell forgings, armor plate, projectiles, battleship turrets, marine Diesel engines, ship keels, propellers and metal and plastic parts for airplanes, steering gears for ships, airplane elevators for aircraft carriers and catapults for airplanes, for example, are being made by the Baldwin Locomotive Works; combat tanks, armor plate, shell forgings, fuses, bridge pontoons, demolition bombs, and mine sweepers, by the American Car & Foundry Company; combat tanks, gun carriages, shells, Diesel engines and other items by the American Locomotive Company; fragmentation bombs, shells, airplane parts, doors, oil and gasoline tanks, stacks, manhole covers, and other items for naval vessels by the Edward G. Budd Manufacturing Company; and combat tanks, carriages, trench mortars, shells, bombs, parts for anti-aircraft gun mounts, wings for cargo airplanes and submarine patrol boats by the Pullman-Standard Car Manu-

The M-4, 30-Ton Tank, Built by Supply Companies; Played an Important Role in the Capture of Tunisia

Shells Made by Railway Supply Companies Broke the Axis Lines in Tunisia

facturing Company; and combat tanks and crawlers by Lima Locomotive Works, Inc.

Products Perform Successfully at the Front

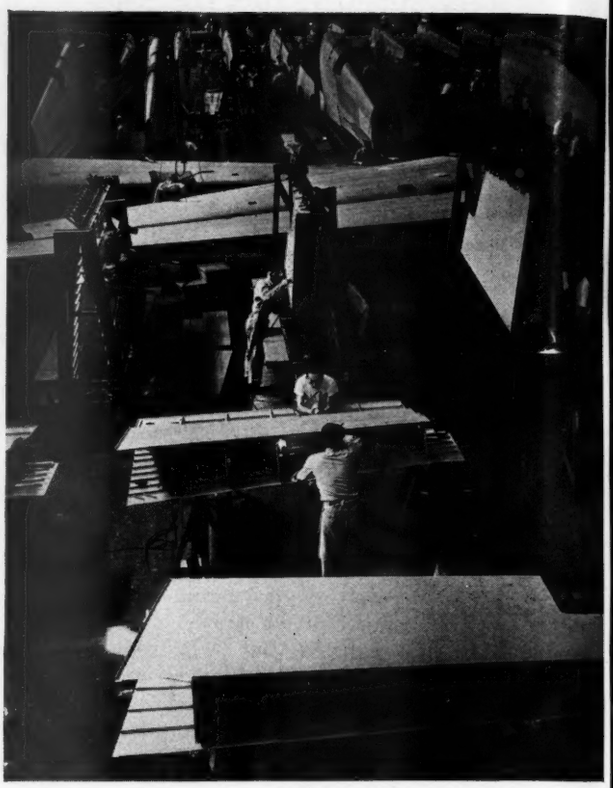
While the technological accomplishments of the railway supply industry in the transformation of plants into an arsenal for democracy and the speeding up of production are outstanding feats, the dramatic performance of the material on all battle fronts from Guadalcanal to Russia is even more gratifying. The M-7 "tank-killer," produced by supply companies and their several hundred sub-contractors, for example, has more than gratified its fabricators by its crushing effect in the allied drive forcing Rommel into the sea. It enabled the tanks of the British Eighth army to succeed when otherwise they might have failed in the break-through at El Alamein, the historic battle which inaugurated the flight of Rommel across the desert.

In a similar manner the tanks, shells, guns, trench mortars, airplane parts and other material contributed by the railway supply industry have proved effective in the drive on Tunisia, the routing of the Japs from Pacific islands and the Russian drive against the Germans. Further evidence of the effective role played by the war products being made by the supply companies is reflected in the war against the submarine by ships and planes, for which railway supply companies fabricated parts; in the sinking of enemy supply ships by our submarines that contain railway-supply-built Diesel engines and parts; and in our vast supply lines over which operate ships that were built with products made by railway supply companies.

The progress made by the railway supply industry since it began to produce quantities of war materials has exceeded expectations. Starting with small amounts in 1939, the yearly production has risen to astonishing quantities as is evidenced by the volume of orders of the companies. The American Locomotive Company, for example, increased its shipments from $38,000,000 in 1940 to $73,000,000 in 1941 and to $302,000,000 in 1942, of which a large percentage was armament. Armament shipments of the Pullman-Standard Car Manufacturing Company increased from about $1,000,000 in the first quarter of 1941 to $12,000,000 in the last quarter of that year and to $56,000,000 in the fourth quarter of 1942. At the beginning of 1943, this company had a backlog of armament orders of about $570,000,000. The net sales of Fairbanks, Morse & Co. increased from $48,520,958 in 1941 to $78,122,333 in 1942, the highest in the history of the company, due in large measure to the manufacture of Diesel engines and other items for war use.

Complete Organizations Set Up

The successful transformation of the railway supply industry from a peacetime enterprise to an arsenal is a testimonial to the ingenuity of the officers and employees of these companies. In many instances the change has meant the formation of complete enterprises with the attendant problems of securing machines and materials, selecting sub-contractors, establishing a flow production and timing all operations to a rate of production which has constantly accelerated. The Pullman-Standard Car Manufacturing Company, which makes combat tanks, gun carriages, trench mortars, shells, bombs, parts for anti-aircraft gun mounts, wings for cargo airplanes, and submarine patrol boats in plants where freight and



Wings for Planes Are Being Constructed in the Railroad Car Plants of the Pullman-Standard Car Manufacturing Company

passenger cars were constructed in peacetime, is typical. Starting with an oral order on September 5, 1940, and with an idle plant laid out for building railway cars, machinery was located and bought, building changes were begun, machinery was installed and production was started. Late in May, 1941, after incorporating changes ordered by the Army, a pilot tank was completed and on July 25, the Hammond shops of Pullman-Standard released the first two M-3 tanks to the British. Again, when the Pullman Car Works of this company received a contract for plane wings early in 1941, it not only had to establish a plant and arrange production schedules but had to create a school for training employees because it was the first plant in the state and there were no nearby schools from which to secure aircraft mechanics. Yet, within two months from the time the sub-contract was let, 117 students had graduated to the production line and finished wings began to flow from the plant.

Equally spectacular has been the construction of patrol boats by this company, a task of no small proportions, entailing as it did an entirely new design in patrol ships and a sectional type of construction. An order was received early in 1942, a new building and shipyard were constructed, special jigs were built, employees trained and on May 2, 1943, the first ship was launched.

The construction of these ships involves a straight line sequence of operations, in which steel plates enter the building and emerge as completed sections which are assembled on the ways. The vessels are constructed in 14 completed sections simultaneously, the keel being a part of each section. Each of the 14 sections is assembled in a separate jig, the jigs being numbered in order from the bow to the stern. Each jig is mounted on wheels and they all roll on a wide gage track so that as each section is completed, it is moved over and

mated to its companion sections to assure uniform fit and to make any needed adjustments before final assembly. As each unit-section is completed, it is lifted from its jig by an overhead crane and moved to the ways, four miles away, on flat cars. At the ways, the center and stern sections are assembled first, because they require more interior fitting. This fitting work is carried on while the bow sections are being put into place. All interior appurtenances are cut to size in bench assembly operations before installation. The building ways accommodate 12 vessels at one time.

One Tank Has 500 Sub-Contractors

The war-time organization of the railway supply industry is a network of production lines which extend from the plants of prime contractors to small companies, sometimes one-man businesses, throughout the country. More than 500 subcontractors and suppliers from all parts of the country keep a steady stream of parts flowing to the plant of the American Locomotive Company for the production of the M-7 tank alone. Most of these companies have less than 200 workers and some have as few as five. One small company of only six men makes one of the most important parts of the M-7. Another company, with only seven men, makes five separate parts.

The vastness of the Pullman-Standard organization is reflected in the fact that during the last half of 1942, 3,463 companies were paid by Pullman-Standard for materials and sub-contract work. These companies ranged from a one-man shop to an industry of 150,000 workers. In the case of the M-4 tank which this company is assembling, 865 material suppliers and sub-contractors in 206 cities in 25 states contribute to its construction. These sub-contractors and suppliers have 5,432 contracts with Pullman-Standard and they in turn draw upon other suppliers and sub-contractors. As a result of this extended distribution of work, Pullman-Standard in 1942 passed along to suppliers and sub-contractors 82 cents of every dollar it received from the government for the finished tank.

In aiding our war efforts, the railway supply industry has not only enlisted its plants but has contributed its talents as well. It has made the products which have enabled the railroads to set up new records of performance; has developed new materials in an effort to conserve vital ones; has cut car requirements by improved methods of loading and routing; has devised new methods of producing war products and in other ways has facilitated production. In addition it has encouraged its employees to join the armed forces and has fostered the sale of war bonds. The many awards it has won testify to its fight for victory.

* * * *

A Familiar Scene on America's Railways Today—A Solid Train of War Material En Route to a Distant Front

By Prompt Loading and Unloading Shippers Have Materially Increased the Available Car Supply

Shipper Cooperation Brings Results

Renders extremely effective help individually and through Traffic League and advisory boards

RAILWAY freight cars spend so much time in the hands of shippers and receivers at best that shipper co-operation is absolutely essential to the most efficient handling of equipment under the war emergency. The railways may speed the movement of cars over the road and through terminals, but they can increase the car-handling efficiency only so much and from there on it is up to the shippers to take up the slack.

The shippers have made great strides in bringing about an improvement in car handling; shippers' representatives have opened excellent channels for co-operation with the Interstate Commerce Commission, with the Office of Defense Transportation and with the railways, by means of which a complete mutual understanding of problems has been developed. In addition, the regional boards have maintained and increased the good work done by their shippers' vigilance and emergency transportation committees, and, in a large number of other ways, have increased the efficiency with which wartime transportation is being handled.

Delay Is Sabotage

A perfect example of what delay to cars in the hands of shippers and receivers can do in wartime was brought to light recently in Holland. Ever since the German occupation, Dutch shippers and receivers have been quietly and effectively sabotaging the rail transportation system by leisurely loading and unloading cars. A more effective method of reducing the transportation capacity of a railway system could hardly be devised. American shippers realized that inefficient car-handling is really sabotage even before the war and they have done and are continuing to do a remarkable job in keeping equipment rolling.

Among the measures that have contributed to this re-

sult, a series of conferences arranged by Director Eastman of the Office of Defense Transportation have been of much value. These include Mr. Eastman and leading members of his staff, Commissioner J. M. Johnson and other representatives of the Interstate Commerce Commission; officers of the Association of American Railroads; and executives of the shippers' organizations. The first of these meetings led to the appointment of a Shippers' Contact Committee, which has now been functioning for over a year. This committee meets with the officers of the O. D. T. and others at least once a month. Constructive ideas are advanced and discussed by all concerned and plans under consideration by the O. D. T. are presented and their merits evaluated. In this manner, plans are worked out that are beneficial to the country's transportation system.

The Shippers' Contact Committee keeps the executives of all the thirteen regional advisory boards informed as to action that should be taken. No shipper need be in doubt as to his responsibility in keeping the nation's railway transportation in high gear. Ample information and advice are also available to him as to ways in which he can contribute best to that end.

In other words, what the shippers' organizations are trying to do—and succeeding in doing in the vast majority of instances—is to insure the continuation of shipper co-operation. This is being done by giving each shipper a thorough knowledge of the national war transportation problems, so that he may conduct his business, as it affects the railways, to the greatest good of the national transportation system.

Plenty of Interest Displayed

The nation has now been at war for a year and a half, but there is no indication of waning interest on the part of the shippers. They are as determined to do their part in keeping the transportation machine in high gear as they ever were. The attendance at the regional advisory board meetings has been in record-breaking numbers, despite the many other calls on traffic managers' time in these busy days. One board is showing an average attendance of over 350 and, for all boards, the average increase in attendance is running between 30 and 35 per cent.

A net gain of 2,807 members was shown in 1942, the largest increase for any year since these boards were formed 21 years ago and this increase is continuing in 1943. Moreover, many more members than ever before are taking part in activities to assist the war transportation effort. In addition to the contact committee previously mentioned, all the boards in the country now have committees on warehousing to co-operate with the Division of Storage of the O. D. T. Ten boards have committees on banking, to facilitate the handling of bills-of-lading over week-ends; 12 boards have appointed L. C. L. traffic committees and several boards have committees charged with co-operation with other than rail forms of transportation.

In the vital Pittsburgh district, the Allegheny board has organized an emergency transportation committee, the membership of which was picked not only as to commodity representation, but also as to geographical location within the board territory. This committee is charged particularly with watching the shifting transportation scene and interpreting the trends and necessities for other board members. This board also arranged a conference with the ordnance branch of the Army at which some 250 ordnance inspectors were present and at which car conservation and means of furthering the co-operation of the inspectors with the shippers and the railways were discussed.

Thus the shippers have been sparing neither time nor expense in keeping abreast of the situation. Realizing this and the value of close contact for the utmost co-operation, many outstanding transportation leaders have attended meetings and spoken before the boards recently, including Director Joseph E. Eastman, Commissioner J. M. Johnson, of the Interstate Commerce Commission; Major General Charles P. Gross, chief, Transportation Corps, Services of Supply, U. S. Army, and Colonel W. J. Williamson, chief, Traffic Control division, Transportation Corps.

Accurate Commodity Reports

Another way in which the shippers have assisted has been through the continuance of the surprising degree of accuracy in the reports of their commodity committees. With traffic channels distorted and emergency freight the rule rather than the exception, these committees, as a result of 2 years' training, are able to maintain the high average for accuracy of their predictions throughout the country. The predictions of one board were 99.5 per cent accurate for the actual loadings for two successive quarters. These reports continue to be of value to the railways, even though, in some sections of the country, no prediction is necessary to confirm the fact that certain railways are going to be called on to haul all the freight they can handle.

The vigilance committees, which have been organized by each board, have been remarkably successful in carrying out their functions. Through individual contact with shippers everywhere, these committees have been responsible for bringing about a substantial reduction in the length of time that cars are held for loading and unloading; in seeing that, where necessary, cars are cleaned so as to make them more readily available for use by other shippers and in bringing about an increase in the average loading of cars. More than 400 committees, comprising some 5,000 shippers, are engaged in this work.

How Vigilance Committees Work

The most effective method for securing results has been through personal calls on shippers by committee members. If such calls do not produce the desired results, several methods are followed, depending upon the individual circumstances. Frequently, personal calls on the executives of companies which are persistently slow in loading and unloading cars have been effective. Furthermore, the vigilance committees do not hesitate to contact Army and Navy officers of the highest rank available when complaints are received that the Army, the Navy or war contractors are delaying equipment.

As a last resort after all else has failed in producing the desired improvement, the vigilance committees report to the representatives of the Car Service division and to the service agents of the Interstate Commerce Commission that a particular shipper or receiver is incorrigible and recommend that embargoes be placed against the offender. Very few such embargoes have been necessary, as the threat itself is usually sufficient to bring the guilty company into line.

The vigilance committees concern themselves with heavier loading, as well as with prompt loading and unloading, and they have been particularly effective in see-

ing that freight cars are cleaned by receivers and not used as dumping places for refuse and rubbish. The committees are valuable in many other ways, such as reducing unnecessary requests for weighing and reweighing of cars, urging seven-day loadings per week and in curtailing cars used in interplant and intra-plant service. They have also urged upon shippers the necessity for eliminating such signs on cars as "Do not hump" and "Unload from this side only." The committees are of the opinion that such signs have been misused for some time and that the practice should cease for the duration.

Other Activities

The L. C. L. committees of the various boards have also been doing good work in their particular fields. They check closely to see that careless practices on the part of shippers and receivers that result in freighthouse congestion are eliminated. They are also vitally concerned in such projects as the Perfect Shipping Month and the proper crating or packaging of L. C. L. freight at all times.

The shippers have also willingly acquiesced in limiting the number of diversions and reconsignments on certain commodities and the time within which this can be done. They have agreed to changes in the demurrage rules to eliminate Sundays and legal holidays and to many other changes designed to facilitate the rapid release of freight cars. Also, particularly among the larger shippers having competent traffic managers, much time and study are devoted to the routing of freight in such a manner as to distribute it more evenly and to use lines that are not over-burdened in order that all routes may be kept open.

It is to be hoped that such co-operation will be continued and increased if possible. Any spirit of complacency is extremely dangerous, as the need for such co-operation is greater now than ever before and promises to continue to increase. More than ever before, the shippers are partners of the railways in the job of keeping war transportation efficient. There can be no letdown for the duration.

Other Co-operative Efforts

In addition to co-operating with the railways directly, the shippers of various industries have been co-operating with the Interstate Commerce Commission and the Office of Defense Transportation to improve wartime transportation within their own industry. Many such industrial committees have been formed.

One such example is found in the grain industry. Under the joint auspices of the I. C. C. and the O. D. T. a national committee has been appointed to make a concerted effort within the grain and milling trade to handle grain and grain products "with the greatest despatch and with the minimum use of equipment, man power and motive power on the part of the railroads." This committee has adopted the title "Grain and Grain Products Transportation Conservation Committee."

Regional sub-committees have been organized in various districts, under the supervision of members of the general committee. These local committees, together with the general committee, will study transportation conditions in each district with a view to correcting practices, either of shippers, receivers or the railroads themselves, that are detrimental to efficient handling of the box car supply. If voluntary measures to accomplish remedial action are unsuccessful, recommendation will be made to the I. C. C. and the O. D. T. for such mandatory action as may be practicable. Railroad representatives and district managers of the Car Service division may be invited to become members of or sit in conference with the local committees.

Facing a critically close grain and flour car supply, and with no prospects for additional new box cars this year, it is highly essential from the standpoints of the railroads and of their patrons that maximum box car efficiency be accomplished. While these objectives are mutual, the fact that this committee is working as much in the interest of the railways as in their own certainly makes it incumbent that the railroads give the new organization the maximum possible support in every respect. The A. A. R. has asked that this should include not only participation in conferences when requested, but particularly advice and suggestions as to situations concerning which the committee can be helpful. It is intended also that the field forces of the Car Service division, as well as those of the I. C. C. and the O. D. T., will develop information for the use of the committee.

Special attention will be directed toward correcting practices involving circuitous or back haul movements in connection with inspection, grading or transit; delays on the part of industries in loading and unloading, or in giving disposition for cars; unnecessary set-backs or reconsignments; use of the reconsignment or diversion privilege to "break" demurrage, etc. It is the desire of the committee to demonstrate that a greater volume of car-days can be saved through voluntary limitation by the trade of privileges now allowed than by arbitrary limitation or abrogation of tariff rules and regulations applicable thereto. To aid in accomplishing this, the railways will supply all available information as to irregularities of this sort and suggestions as to procedure for the committee to follow to get these results.

An Unusual Customer Relationship

Through this committee is afforded an opportunity to advance reasonable and practicable proposals for industry co-operation in cleaning or making minor adjustments to cars otherwise suitable for reloading, in order to save delay and switching service involved in movements to and from cleaning tracks. The committee will study railroad switching and interchange procedure to determine if unnecessary movements are being made in making cars available for loading. Already specific suggestions are being considered at two points for joint cleaning and repair yards to reduce car handling and delay in the preparation of cars for reloading of a character that is beyond the capacity of the industries unloading the cars to perform. In general, this program offers the expectation of substantial aid to the railroads in meeting problems of box car supply that are likely to be unusually difficult this season, and the promise of further constructive achievement in the field of voluntary industry-railroad co-operation.

No other industry in the country has such a smooth-working, effective, customer-purveyor relationship. As a matter of fact, the present system of co-operative effort on such a large scale is without precedent in American industrial relations. Unquestionably, it has been a major factor in avoiding the transportation chaos that occurred in 1917-18. However, the job is by no means done. The prospects for the coming months, and particularly the winter months of 1943-44, are not bright. Continued and enhanced co-operation will be necessary, if wartime transportation is to continue to be handled without delay and confusion.

"Manpower—a Threatening Menace"

Increased Business Has Brought Many Young Brakemen to the Railways

The drain upon trained railway men and the difficulty of securing replacements is creating a serious situation

THERE is just no use being optimistic. The manpower situation has reached a crucial stage—and, from all indications, it is going to get worse before it gets better. Until the Army reaches its planned size, which will probably be about January 1, 1944, the present confusion involving the dislocation and drafting of employees will continue, and this fact must be faced. The War Manpower Commission does not consider the railway man as important as the farmer. It is difficult to understand what good it will do to increase agricultural products if transportation is not available to haul them to markets, but the decision has been reached. The deferment of farm labor will react seriously in and of itself upon the railway manpower situation, and particularly as respects track labor, which has traditionally been recruited from the farm boys and in this department the pinch is now being felt most acutely.

What Can Be Done

One ray of hope is to be found in the "work or fight" order for non-essential occupations. This will create a reservoir of unused labor and the railways will be able to pick up some of the waiters, bartenders, and ribbon-counter clerks who will be uprooted by the order. Just how effective such men will be as railroaders remains to be seen, but the labor supply is there. Another ray, at least, of hope in so far as the need for common labor is concerned, is to be found in the recent agreement between the State Department and Mexico to admit 6,000 Mexicans for employment on the tracks of the roads in the Southwest and along the Pacific Coast.

The women of the country have responded heartily in filling the places of men. They have proved that they can operate many types of machinery as efficiently and as tirelessly as male employees, but they have not yet proved themselves in all occupations. They are being tried in different capacities in various places, however, and it may be that a partial solution will be found in the employment of women in many railway jobs hitherto considered as men's special prerogative. Certainly, through force of circumstances, the British railways have found female labor of the utmost value in all sorts of positions, and in Russia, even before the war, female enginemen, firemen, trainmen and conductors were by no means uncommon.

Many of the railways are endeavoring to have the legal employment age limit for so-called hazardous occupations reduced from 18 to 16 in order to be able to hire youths below the draft age. The suggestion has

been made by some roads that the railroad retirement board, temporarily at least, revise the provision whereby a retired employee ceases to receive his pension if he returns to work for a railroad.

Meanwhile the rail manpower committee, headed by Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, has kept in touch with the situation in Washington. Its members have been endeavoring to co-operate in working out the replacement schedule which has been prepared by the Selective Service System to provide orderly control of the withdrawal of selective service eligibles from industry. This schedule is designed to provide for the systematic replacement of those men who must be made available to military service, but when approved by the Selective Service System it will give the employers a voice as to the order in which men of the same draft status will be called. Sub-committees of the rail manpower committee have been busy on the replacement schedule, and also on the so called "manning table" which was designed by the War Manpower Commission. These sub-committees are also endeavoring to lighten the clerical demands on the railways through the consolidation of the statistics requested from the railroads by various government agencies. The manpower committee has also been working closely with the war manpower commission in the development of various training programs for new employees.

Operating Department Labor

Since a large percentage of the men employed by the operating department are skilled workmen, of a type not in immediate demand by the war production plants, this department has felt the pinch rather less than other departments. Even here, however, the shortage has been keenly felt in specific services. The shortage of competent telegraph operators continues to grow more acute, despite the schools for training telegraphers that railways all over the country have established. Freight-house labor is scarce and growing scarcer, since its relatively unskilled work is concentrated in the larger centers where competition for labor is keen.

Nearly all of the enginemen and conductors are over the draft age, as are many of the firemen and brakemen, but the tremendously increased traffic has set up demands for more train and enginemen and particularly for switchmen, and this need is quite difficult to fill.

The 13-Point Agreement

The 13-point agreement developed between the railway managements and the railway unions a few months ago holds a promise of some relief that is, as yet, largely unfulfilled. The further elimination of make-work rules, at least for the duration, would be of great additional help.

A wide divergence is apparent in the manner in which the 13-point agreement is being administered on different railways. Some dismiss it as being of no value; others have entered into negotiations looking toward the adoption of some of its principles; still others are working hard to secure the maximum benefits from it.

What the 13-point program is and how to determine the best applications of its principles are outlined in detail in the following, which shows the action taken regarding each rule by two large roads in different sections of the country.

1. "Relaxation of yard operating rules to permit crews delivering cars to the yards or tracks of another road to haul back cars to their own road, so as to give the engine a load in both directions."

(Road A) A detailed study is being made of all interchange movements in order to determine the effect of this principle upon the manpower situation and the extent to which it may be necessary to negotiate special agreements with interested labor organizations.

(Road B) It has been the practice for years at many points for transfer crews to haul cars in both directions. Where this has not been the practice, the matter has been taken up with the committees for necessary action.

2. "Continued employment, as long as physically able, of men eligible for retirement under the Railroad Retirement Act."

(Road A) Employees are being encouraged to remain at work when consistent with their physical condition.

(Road B) It was already doing what it could and is continuing efforts to have physically qualified men continue in the service rather than retire.

3. "Cooperation of management and workers to reduce absenteeism to a minimum."

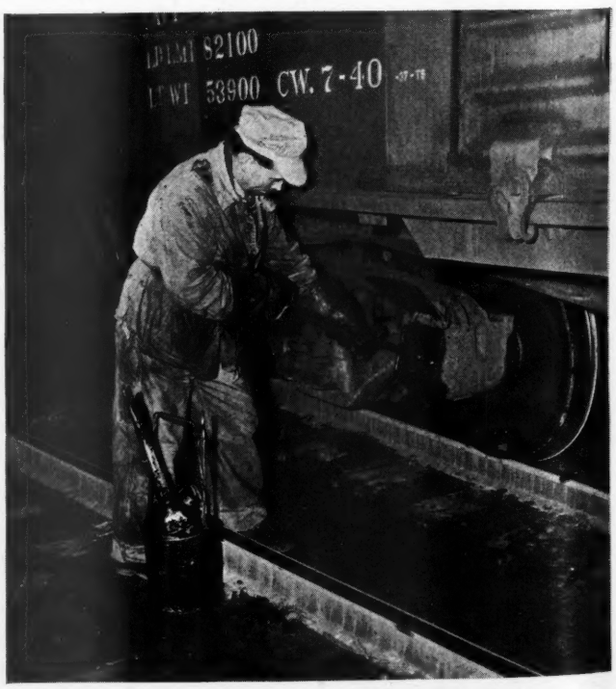
(Road A) A recently completed survey discloses there is very little absenteeism and operations have not been affected appreciably. This has been controlled heretofore largely by employing officers who have discouraged and refused to permit absenteeism for other than legitimate causes. Reports are now being made to union representatives reflecting absenteeism among shop craftsmen, in an effort to prevent recurring instances.

(Road B) Has secured the co-operation of general chairmen in efforts to reduce unjustified absenteeism.

4. "Relaxation of road mileage limitations and of hourly limitations in yard service."

(Road A) These regulations have been generally relaxed and have not contributed to personnel shortages.

(Road B) Mileage limitations in general have been relaxed or disregarded. Additional relief may be se-



Increased Utilization of Cars and the Importance of Keeping Them Rolling Require Additional Car Inspection

cured through an increase in the working days of men on regular assignments.

5. "Efforts by labor and management to work present forces full straight time and to distribute uniformly such overtime as may be required."

(Road A) This is being carried out and does not at this time present a problem.

(Road B) The principle of working employees full time is applied throughout the system.

6. "Upgrading and promotion within or without any group, so as to bring about the fullest possible utilization of training and skills of present employees and minimize problems of obtaining and inducting new employees."

(Road A) On June 16, 1941, an agreement was reached between the management and the employees' organization providing for upgrading regular apprentices and helper apprentices who had served only a portion of their prescribed indentures. Since the agreement was effected, 624 of these employees hav been upgraded and are now being used as mechanics.

(Road B) Agreements have been reached with shop crafts' organization permitting the promotion of helpers to mechanics, and of regular apprentices and helper apprentices prior to the completion of their courses. In many other agreements the practice is automatic through provisions permitting employees to bid for positions in a higher category if qualified.

7. "Transfer of shop work from one railroad to another to meet critical labor shortages. Transfer of employees from one railroad to another with preservation of seniority rights on original job."

(Road A) Up to the present time it has not been necessary for this carrier to transfer work to other railroads, and this stabilization of work performance has made possible, so far, a desirable constancy of labor. In the Chicago switching district a transfer of yardmen from one railroad to another has been practiced on a "borrowing-lending" basis. This has been made possible by an agreement effective, February 8, 1943, between 17 roads and their employees.

B. of R. T. Agrees to Yardmen's Transfer

(Road B) At Chicago many of the roads have entered into an agreement with the Brotherhood of Railroad Trainmen whereby surplus yardmen on one road are utilized by other roads, the employee retaining his seniority on his home road while so employed. A similar plan is being considered for Buffalo, N. Y. On some divisions arrangements have been made with the committees providing for the transfer of men from one division to another, without loss of seniority, when peak loads shift. Arrangements also are in effect on some districts under which, if there are no bidders for a clerical position on a district, employees from another district may take the position without loss of seniority.

8. "More intensive on- and off-job training, and provision for some pre-employment training. Consideration of payment of compensation during pre-employment training periods."

(Road A) On-the-job training is particularized on this property through use of apprentice mechanics, clerks, telegraphers, and dispatchers. Relatively few student trips are made by inexperienced firemen and brakemen, and their service performance is supervised from the beginning by other crew members. Representatives of this carrier are calling upon school superintendents, principals, and board members, explaining the need for using young men to replace employees called to the service. The employees and their representatives have been solicited to co-operate in this plan and endeavor to place members of their families in the service of the railroad. Plans are formulated for establishing a school of instruction and during this pre-employment training period the railroad will absorb the living expenses of the applicants.

Training as Job-Instructors

(Road B) Some 3,000 employees have taken or are taking courses in job-instructor training, enabling them to shorten the training period of new employees. Many others are taking courses of similar character which are conducted by various colleges and universities, the National Foremen's Institute, the Railway Educational Bureau, YMCAs, etc., all of which will facilitate on-the-job training. In addition, a school has been conducted for the training of women ticket clerks and schools are now being conducted for the teaching of telegraphy to both men and women.

9. "Cooperative effort to encourage return of retired employees."

(Road A) Preparations have been made for the return of retired employees, with the understanding that they will have the status of new employees.

(Road B) Has endeavored to get retired employees to return to the service. Its success, however, has been limited as many find that they are not able to perform steady work.

10. "Relaxation, so far as practicable, of age and physical examination requirements."

(Road A) There has been a general relaxation of these requirements where consistent with the service to be performed by the individual applicant.

(Road B) Has relaxed considerably age and physical examination requirements.

11. "Induction of new employees, so far as practicable, into lower skilled brackets so as to minimize the need for pre-employment training and to expedite on-the-job-training."

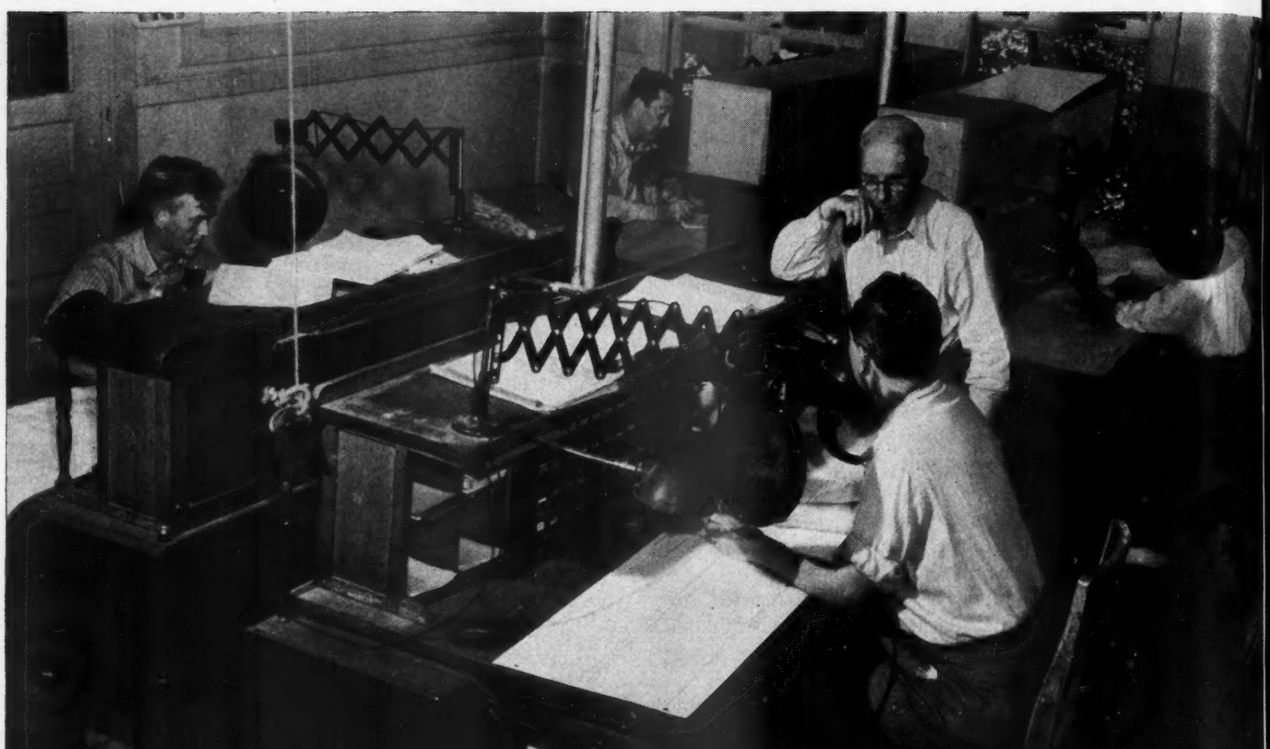
(Road A) New employees are, generally, placed in lower skilled brackets such as helper and apprentice positions. Men have been employed as coach cleaners and their work and experience in that classification have in many instances made possible their promotion to positions of mechanic helpers without the need for any intensive on-the-job training.

(Road B) The practice of inducting new employees into the lower scale brackets was practically automatic under the provisions of most agreements, the employees being hired for the lower grade positions and then stepped up as they qualified for higher grade positions. The principal exception is in the case of mechanics who must have had prior training to qualify them.

12. "Consideration of employment of women of railroad employees' families."

(Road A) Labor and management have generally encouraged the employment of women, releasing men for more skilled work and to fill the places of men inducted into military service. The management's proposal that helpers and women be permitted to perform machine work heretofore performed by mechanics, so as to release skilled workmen and relieve shortages in their ranks, is now being considered by union representatives.

(Road B) Now employs over five thousand women, mostly in offices, and is extending the scope of their employment to include many jobs which formerly they



An Acute Shortage Has Developed in Dispatchers and Telegraph Operators

were not considered able to fill. Women of railroad employees' families are given preference if qualified.

13. "Relaxation of the present 16- to 21-year age limits for employment of shop craft apprentices, so as to permit training of men who will be able to remain in service."

(Road A) This subject is now being considered actively by union-management representatives. The management has proposed a relaxation to not below a fifteen-year-age limit and union representatives have expressed a willingness to accept an even lower limitation.

(Road B) It is doubtful what may be accomplished by changing the age limits for apprentices. Boys less than 16 years of age are irresponsible and in many states must remain in school until they are 16 years of age.

On the other hand, men above the age of 21 are not likely to take an apprenticeship course so long as they are able to obtain higher wages in defense plants.

Labor in the East

To obtain light on specific problems, we have asked individual railways throughout the country to describe the conditions on their properties. The results follow:

"There is a definite and growing shortage of practically all classes of employees, particularly skilled and common labor. We began effecting arrangements to utilize available forces to the best advantage some months ago and are continuing to do so. It is still too early to evaluate the possibilities of the 13-point agreement, but it is unlikely that any great amount of manpower otherwise unavailable will be developed."

"The manpower situation is serious and is growing worse continually because of the loss of employees to the armed forces and to outside industries, and to the scarcity of qualified replacements. The occupations which are now causing us the most concern are mechanics and helpers, telegraphers, road and yard brakemen, all sorts of common labor and dining car employees. We have been able to increase man-hours materially as a result of the 13-point agreement."

"We have been able to compensate, in part, for the critical shortage of manpower by the fine co-operation of the various classes of our employees, but we are rapidly approaching a point where no amount of altruism will offset the devastating inroads of the draft."

"The manpower situation continues difficult. Nearness of other war establishments has depleted the usual sources of supply in common labor, skilled, semi-skilled and clerical occupations. It is to be hoped that the 13-point agreement with the brotherhoods will, when the details have been worked out and its provisions put in operation, result in some alleviation of the present situation."

"Our manpower situation is already serious and each day makes it increasingly so. We are in the center of a heavy industrial area, where war-swollen wages and overtime rates offer far greater wage inducement than does railroading, so far as the lower paid classes of labor are concerned. The 13-point agreement with the brotherhoods is all right but what we need is a drastic revision in the onerous feather-bed rules. Even this will not solve our labor problem in the lower brackets."

"We are short of help in engine, train and yard service, freighthouse employees and mechanics. There has been no material assistance from a manpower standpoint as a result of the 13-point program."

"The manpower situation is acute in certain industrial areas and we are employing women as crossing watchmen, freight truckers and for light labor. We are

placing the provisions of the 13-point agreement into working practice."

Manpower in the West

"We are short of telegrapher-agents, switchmen and shopmen. It is becoming particularly difficult to obtain all classes of men necessary to take care of our increased volume of traffic, particularly on the Pacific Coast where there has been such a large expansion in the shipbuilding and airplane industries. Common labor for work at engine terminals and on freighthouse platforms is very difficult to obtain. We have established food and housing facilities for such employees at several of our terminals. We hope that the 13-point agreement will be helpful."

"We have been close on manpower several times but have been able to take care of our situation and have not run into serious difficulty. So far, the 13-point agreement has not assisted us to any extent."

"The labor supply is depleted because of the competitive labor situation in this region. We have made effective use of women employees for some time and were among the first to establish a supervisor of women's employment."

"While there is much shortage in experienced help in all branches of the service, we have so far been able to keep our power and cars serviceable and to maintain our tracks in good riding condition. Negotiations are expected to develop what the advantages of the 13-point program may be."

"The situation here is critical and has been for many months. It is practically impossible to obtain common labor, despite the fact that we have given this matter the most exhaustive study from every angle and have spent a fortune trying to get labor. There is no cause for optimism in the outlook."

"The labor situation on this railway is becoming more and more acute both as to skilled and unskilled labor. No measurable benefit has been obtained from the 13-point agreement, since generally, the practices outlined were already effective."

The Situation in the South

"We have had a constant shortage of skilled mechanics, train and engine crews and common labor for a number of months. Our training program for women telegraph operators has been effective for over a year. The 13-point program has been of assistance, especially as to on-the-job training programs."

"We have not suffered materially from manpower shortage. Progress has been made and is continuing as to negotiations with labor organizations with respect to the 13-point agreement. Some of the features contained therein have been in effect for some time, with helpful results."

"Our manpower situation is acute in spots but has not yet reached a critical stage. The most serious shortage is wharf labor. We are suffering the usual loss of efficiency because of inexperienced employees."

"Our loss to the armed forces alone is 10 per cent and we expect this figure to be doubled within the next year. We are filling many of the positions with women."

"Thus far we have been able to secure sufficient manpower to meet our needs in engine, train and yard service, although with much difficulty. While our enginemen have not entered into any formal agreement to relax mileage limitation rules, the maximums prescribed in the agreements are being exceeded without objection. The shortage of telegraph operators continues and we have not been able to meet our needs, either through regular employment channels or through our training program."

"We are having difficulty securing sufficient men in all departments, but the draft boards have been very considerate in view of our location from a military standpoint, and the labor organizations have been most co-operative in line with the 13-point agreement."

Track Labor Problem Serious

Of all the departments of the railways, the maintenance of way department has felt the shortage in manpower most keenly. In fact, the prediction at the first of the year that, unprotected in their manpower requirements, the maintenance forces would be confronted with a critical shortage in the spring and summer months, has come true. As a result, the maintenance forces today face huge demands for essential work upon the fixed properties to keep pace with traffic—larger demands than at any time since 1929—with shortages in manpower ranging anywhere from 10 to 50 per cent and more, and, not infrequently, with the greatest shortages in the areas where labor is needed most vitally.

Last fall the railways reported that vacancies in section and extra-gang laborers, including normal turnover as well as actual shortages, totaled approximately 30,000 men. During the winter months, with the necessary curtailment of many maintenance activities, at least in the northern part of the country, due to severe weather conditions, that figure was reduced materially. But today, as the active work season gets well under way —a season that calls for large programs of imperative work on the tracks, bridges, buildings and water service facilities, if these are to keep pace with traffic demands, it is estimated that the vacancies in the ranks of the maintenance of way and structures forces exceed 75,000 men, and this in spite of the many measures adopted by the roads to maintain their forces and to recoup their losses.

Since last fall, in spite of warnings sounded by Director Eastman of the Office of Defense Transportation to the War Manpower Commission of serious impending shortages in railway labor, and calling for relief measures, the drain on this labor has continued unabated. In fact, while there appear to be some stabilizing and offsetting influences now at work, there are other influences that seem certain to outbalance them. From the start, the trackman, as such, below the rank of foreman, has had no protection whatever in his draft status and still has none. As a result, thousands of these men have been called into military service. Other thousands volunteered their services. Still other thousands, unrestrained, have sought and obtained employment in other war industries with wages and concessions beyond the ability of the railways to meet. The induction of 18 and 19 year olds into military service also took a large toll on the track forces, and still more important, practically eliminated this large reservoir of manpower from which the railways had hoped to recruit replacements.

Only in a minor way have the railways benefited from the release from military service of former employees 38 years old and older, and, likewise, only to a limited extent have they benefited from temporary layoffs in war production plants and military establishments—benefits which are far overshadowed by recent developments that indicate that, bad as the situation is, it is certain to be-

come worse unless adequate measures are taken to increase the overall labor pool of the country materially and to improve the "essentiality" status of track workers.

Further Drain by Draft Certain

The insistence of military authorities and the President upon an army and navy of 11,000,000 men by the end of 1943, coupled with the preferential rating that is being accorded agricultural workers to bolster food production, strikes an ominous note at the railways seeking to retain their essential track workers. Only a month ago, Brig. Gen. William C. Rose, chief of the executive services of the War Manpower Commission, warned that essential industries will lose as many men to the armed services this year as they have already lost through induction by selective service, declaring that most of the more than 4,000,000 men who will be added to the armed forces in 1943 will have to be drawn from the present labor reservoir. This situation, especially in the light of the fact that section and extra-gang labor has not been considered trained or key personnel by Selective Service in the past, and is not likely to be so considered in the future, in spite of the essentiality of its work to the war effort, forecasts still increased seriousness of the maintenance of way labor problem.

And the further drains of Selective Service are not the only concern of maintenance officers for their labor requirements, because it is evident that in the so-called labor "freeze" order of the WMC, effective April 18, there is little to "hold the line" in track maintenance labor. With farming now high on the preferential list of essential activities, if not at the top in many areas, it is not inconceivable that the maintenance forces will lose additional men to the farms, and, of still more serious consequence, is the fact that, with the farmer and rural worker tied down to the soil, the chief source of track labor throughout most of the year in rural and farming areas will be practically cut off.

Maintenance Forces Get What's Left

As at the outset of the maintenance labor shortage, the greatest shortages at the present time exist along the Pacific Coast, the Eastern seaboard and Gulf Coast, and at widely scattered points throughout the country in areas of greatest industrial and farming activities. In many of these areas, extra gangs to carry out the heavier general maintenance operations are so depleted, or involve such a heavy turnover, that effective work is almost impossible, and in not a few instances such important work as the laying of new rail, already on the ground, has waited weeks because of the inability to muster adequate forces to put it in the track and service it properly.

Section gangs, in most instances, have been hit less severely than extra gangs, being more stabilized even in normal times than extra gangs. However, even the section forces in many parts of the country have been thinned to the point where their activities must be confined to patrolling and only the most essential work—with routine maintenance almost at a standstill—a situation that obviously cannot prevail long without serious consequences.

In those sections or areas of the country where shipbuilding, aviation and other war industries have drawn hundreds of thousands of workers from other pursuits, and, in many instances still call for more, the railways have not only lost most of their younger men not already

Businessmen and Students, Working Week-Ends and Holidays on the Southern Pacific, Are Doing Many Classes of Track Work, Including the Laying of Rail

called into military service, but, due to the higher wage scales, bonus systems and overtime allowances prevailing in these industries, these industries have drawn off the cream of the general labor market that remains. Left to the railways largely have been only their older employees, bound by ties of loyalty and accumulated seniority rights, along with any available part-time workers, the over and under-age unemployed, and such other classes of available labor as are not sought by other industries.

Thus, in addition to a serious shortage in track maintenance labor throughout the country, it must be said that the general efficiency of much of the labor now employed in track maintenance work is far below normal standards. Only as the railways have been able to hold their more experienced middle-aged men and their mechanics and machine operators, and have been able to intensify the use of power tools and machines in maintenance work, have they been able to offset to a measurable degree the generally reduced efficiency of their track forces. However, with no assurance that other thousands of their most experienced employees will not be called into military service, plus the fact that much of the work equipment of the roads is undergoing excessive wear and is not too readily replaced in these days of material shortage, even these stabilizing factors are none too strong or secure.

Among the bridge, building and water service employees of the railways, the labor situation is far less acute than among the track forces, in part because of the generally higher age level and seniority of many of these employees, and in part because of the generally higher wage levels in these departments. The same may be said of the signal department forces. However, again varying with different areas or communities, even these forces are short many carpenters, painters, me-

chanics, welders and maintainers, and to the extent that these shortages cannot be made up, essential maintenance work, in the interest of adequate transportation and the conservation of the critical materials making up the railway properties, cannot be undertaken.

Offset Shortages by Many Expedients

Maintenance officers have not been unmindful of the serious labor situation that prevails in their department, and are adopting many expedients, some of which were considered impracticable only a few months ago, in an effort to replenish, man-hour by man-hour, the shortages in their labor ranks, and to discourage further voluntary defections for any cause. Some of the expedients that are being employed by various roads to these ends, and with considerable success in some cases, include the intensive solicitation of manpower by advertising, by the roads' own supervisory forces, by their own employment agencies, and through the United States Employment Bureau and the Railroad Retirement Board; the lengthening of the working day beyond eight hours, which is now optional with the track forces on many roads, and permitting work also on Sundays; improved housing and boarding facilities at reduced cost to the men; more intensive programs of constructive work during off-seasons, to provide steady employment; the full-time employment of women for work for which they are adapted physically; the part-time employment of business men and college students—especially on week-ends and holidays; the full-time employment of high school boys week-ends, during vacations and on other off-school days; the relaxation of normal age limits, both upward and downward; the lowering of physical requirements, within limits; the retention in service of those reaching retirement age, if physically fit; the more widespread and intensive use of power tools and work equipment of all kinds; requests for the deferment of their most important, or key, men from military service. In addition, a few roads are experimenting with the employment of American-born Japanese, released from internment centers with the approval of the government.

The local labor market having dried up, some of the most successful labor recruiting of the maintenance forces, and other railway forces as well, has been in areas far from their lines having a surplus of labor, this recruiting being done through the off-line agencies of the roads, advertising and special labor scouts sent into these territories. Often, this method of recruiting has proved discouraging through desertions en route to points of work and the inability to hold the men once employed, but in the long run it has, inevitably, gained considerable employment for those roads that have tried it, and, in any event, has brought unemployed men into areas of labor shortage, where their employment in any industry has had a tendency to ease the labor situation.

Following this practice, one of the western railroads within a recent three-months' period recruited 2,648 employees off line, largely Mexican and colored. Of this number, 743 deserted en route to their jobs, and another 786 quit their new jobs. While this left only about 1,100 of the recruits on the job at the end of the three-months' period, it did give the railroads 1,100 more vitally needed employees than it would have had if it had not made the off-line recruiting effort.

Another road, which extends east from Chicago, has had a similar experience, sending labor scouts into Pennsylvania, West Virginia, Kentucky and Tennessee. While this road also lost many of its recruits en route or shortly after assignment to jobs, it ultimately retained enough of the men employed to help alleviate serious labor shortages in certain territories.

One of the most unusual and effective expedients of swelling man-hours of employment on the track—that of employing non-railroad, "white-collar" workers and students on week-ends and holidays—has been practiced successfully on the Pacific lines of the Southern Pacific, where each week-end and holiday since last fall, hundreds of high-school and college students, teachers and professors, workers representing nearly every type of business and profession, and some railway employees from other than the track department, have been aiding the depleted track forces in a wide range of constructive essential work, including the laying of rail. For more than six months now, the Pacific Lines have demonstrated the practicability of the plan, at least in their territory, a plan that has already seen more than 40,000 man-days of effective extra labor help overcome a track labor shortage that has ranged from approximately 3,000 to 4,300 since the first of the year.

Stimulated by local publicity and advertising, the road's idea in this regard spread rapidly to the different towns along the line, as is seen by the fact that for the six week-ends, February 13 through March 20, a total of 18,306 of the "white-collar" workers put in the equivalent of 18,361 eight-hour man-days, or an average of 3,060 man-days per week-end. During the latest single week-end for which figures are available, that of April 17, these workers put in a total of 4,525 man-days.

Analysis of the employment figures for the week-end of March 6, which are largely typical of those for subsequent week-ends, shows both the scope of the plan on the Pacific lines and the diversity of occupations from which the part-time workers are drawn. This shows that on the two days of this week end, 132 man-days were put in by businessmen; 68 man-days by professional men; 2,415 by students; 27 by teachers and professors; 329 by men with no full-time occupations; 2 by furloughed soldiers; and 15 by company employees from other departments. It also shows that the plan was in effect on all ten operating divisions of the Pacific lines, as well as on the Northwestern Pacific and the San Diego & Arizona Eastern, both of which are parts of the Pacific lines.

Week-end Employees Do All M. of W. Operations

All of the part-time workers are employed as section men at the prevailing section gang rate of pay for eight hours on Saturdays, with time and one-half for any hours worked in excess of eight hours on Saturdays and for all hours worked on Sundays. From the start, the men have worked along with and beside experienced track men, and the character of the work on which they have been employed has been limited more by the operations required in the various localities than by any other consideration. In fact, there are few maintenance of way operations on which they have not been employed, their work already having included surfacing track, dressing ballast, cleaning cinders from the centers of tracks, laying rail, installing switches and renewing ties, with every expectation that they will be employed in other operations as the need arises.

Several roads have concentrated upon the employment of high-school students, ages 16 and 17, where laws permit, as the most likely source of labor that will be effective and not immediately subject to call into military service. The Chicago, Milwaukee, St. Paul & Pacific, for example, now has several hundred boys on its lists for part-time work. In organizing its plan for the use

of high-school boys, it asked its supervisors to call at local high schools and solicit boys for part-time employment. The schools were told that the railroad would employ the boys full time during their summer vacations if they would go away from home to points of work, as necessary; that special camps, with the proper influence and surroundings, would be provided for the boys alone; and that arrangements would be made to take the school athletic coach along to help supervise the boys and to reassure their parents.

Neither the Milwaukee nor those other roads that have employed considerable numbers of teen-age boys have found these boys as steady and efficient as older men, but all of them have found that, with proper environments and supervision, effective work is accomplished, in the interest of both the boys and the railroad.

Indians from Government Reservations Are Helping Fill the Breach in the Track Forces on a Western Road

List of Women Trackworkers Grows

Track work has never been considered within the province or scope of women, and many maintenance officers look to the employment of women for such work only as a last resort. However, it is not without interest and significance that a number of roads, in the present emergency, including the Southern Pacific, the Pennsylvania, the Illinois Central and the Denver & Rio Grande Western, are employing women for certain classes of track maintenance work. For example, the Pacific lines of the Southern Pacific now employ a total of more than 150 women in track work, and recently appointed one of their women track workers an assistant track foreman.

On this road, as well as on the other roads that have employed women for track work, the women are usually worked in all-women gangs, with men foremen, although on occasions they are worked alongside or near man gangs who share the work, taking the heavier operations, and in at least one case men form a part of the gang as a whole to do the heavier work. On the Southern Pacific and on the D. & R. G. W., the women employees are white, of various nationalities or extractions, while on the Pennsylvania and Illinois Central, most of the women track workers are colored. For the most part, the women are employed within or about yards or terminals, although in at least a couple of instances they have been employed out on main or branch line tracks.

Terminal and yard areas, generally with their lighter rail and ballast and the large amount of policing and cleaning to be done, usually afford the most favorable conditions for the women gangs, and also have the advantage that they generally afford toilet facilities. However, where toilets are not available, each road employing women has had to provide suitable separate facilities for them.

When women were first employed in the track department, it was thought that their work would have to be confined largely to cleaning and general policing work, but gradually it was found that their duties could be expanded to a wide range of operations. Today, therefore, the work of the track women on the various roads that have employed women include the distributing of bolts, spikes, tie plates and angle bars ahead of rail gangs; the redistribution of excess ballast unloaded in ballasting operations; the surfacing and general maintenance of yard tracks; and the cribbing out of cinder-ballasted track ahead of reballasting operations with other materials. In a few instances women gangs have been employed in tie renewal work in conjunction with men, in territories of cinder, chatts, or screenings ballast, the men renewing the ties and the women following up, shovel-tamping the ties and redressing the ballast. In another instance, where new yard tracks were being raised on 6 in. to 8 in. of cinders, a gang of colored women were employed for the complete operation—from

the unloading of the cinders, through the jacking up and surfacing of the tracks. In still another instance on another road, a gang of colored women was employed for a considerable period during the last winter in a general program of rail-joint renewals in yards, carrying out all of the operations with the aid alone of a regular track foreman.

Last fall, there were probably fewer than fifty women employed in track work on the railways; today there are probably more than 800. What the next six months may bring or make necessary in this regard, unless the manpower situation is eased, is a matter for conjecture. Experience to date has demonstrated that women, physically fit, can do many of the lighter operations of track work, and can substitute for men in these operations. However, it has demonstrated with equal clarity that women are far from as efficient as men in practically every class of track work, and that their employment in this work must be considered only as a stop-gap in a period of serious manpower shortage.

Alone, none of the foregoing expedients being employed by the railways to ease their track labor problem is considered other than a partial temporary help. Even combined, they come far from providing the answer. Going beyond all of them, the roads must be further protected in their remaining experienced track labor, and must find new sources of manpower that can help them carry on for the duration. The recent agreement between the State Department and Mexico, after months of urging on the part of the railroads, permitting the importation of 6,000 Mexicans for work on the railroads of the Pacific Coast and Southwest, appears to be an important step in this latter direction. But even if this number is doubled, tripled or quadrupled, the roads will have to continue to use the utmost ingenuity in finding and employing other expedients to replace by adequate man-hours of labor, the heavy toll that traffic is taking of their tracks—a toll that must be replaced if the railroads are to continue to stand up under present demands and are to meet successfully equally important post-war requirements.

Manpower in the Mechanical Department

Superficially, there is little, if any, indication of a statistical nature that car and locomotive conditions are not as good today as they were a year ago. A closer look at the mechanical department, however, discloses that, while the hours of skilled labor worked have not declined seriously in relation to the needs, this result has been attained only by a marked upturn in the amount of overtime worked. For instance, overtime hours worked by machinists were 4.6 per cent of the total hours worked by machinists in February, 1942. By February, 1943, the proportion of overtime had increased to 12.7 per cent. A glance at the table shows how much more rapidly the increase has been during the latest months. The same trend is shown with respect to boilermakers and carmen C and D.

Mechanical department officers are becoming seriously concerned not so much because of the situation as it stands at the moment as because of the prospect that depletion of forces is going to continue at an increasing rate as the year advances. Already there is an appreciable percentage of unfilled jobs in their shops, engine terminals, and on their car-repair tracks, and that percentage is slowly but surely creeping up. There are limits beyond which the situation cannot be protected by increasing overtime.

Of course, not all railroads are affected alike. Some few roads on which traffic growth has not been up to the general average are not yet seriously confronted with the problem; others, particularly in the industrial East and on the Pacific coast, face acute competition for skilled workers in practically every craft. This factor, however, has been pretty well discounted and the problem of the immediate future is that created by the growing pressure of the draft of men for the military services. The losses from this cause are particularly severe among apprentices and recent apprentice graduates.

Many measures have been proposed for alleviating the situation, and they are all being employed in varying degrees. Among them are:

a—Training programs
b—Campaigns against absenteeism
c—Transfer of repair work from road to road
d—Changes in age limits for employment
e—Reemployment of pensioners
f—Employment of women

Training programs as they affect the war manpower situation are primarily devoted to developing skill and precision of method in the instruction of workmen by supervisors and of training and upgrading men who are employed as specialists rather than fully trained mechanics. These programs are not an ultimate solution for the loss of manpower. They do, however, reduce the time lag between the hiring of inexperienced men and their effectiveness as workmen.

Campaigns against absenteeism may offer some relief from man shortages where unnecessary non-attendance runs high. As total absenteeism ranges upward from three or four per cent, their importance grows progressively.

Transfer of repair work from road to road is a measure for evening up the load on the equipment repair facilities and manpower of the nation. It is, however,

Trend in Overtime in the Mechanical Department

	1942						1943	
	Feb.	Mar.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
Machinists								
Straight time hours worked	7,963,327	9,033,472	9,085,082	9,836,750	9,027,196	9,607,033	9,483,648	8,730,302
Overtime hours worked	423,105	497,546	735,699	836,297	958,420	1,025,834	1,203,199	1,270,697
Total hours worked	8,386,432	9,531,018	9,820,771	10,672,947	9,985,616	10,632,867	10,686,847	10,000,999
Overtime worked, per cent total time worked	4.6	5.2	7.5	7.8	8.5	9.7	11.3	12.7
Boilermakers								
Straight time hours worked	2,253,479	2,554,431	2,576,111	2,789,686	2,555,968	2,738,344	2,694,221	2,480,365
Overtime hours worked	109,712	130,713	207,941	234,721	277,813	291,095	342,164	351,299
Total hours worked	2,363,191	2,685,144	2,784,052	3,024,407	2,833,781	3,029,439	3,036,385	2,831,664
Overtime worked, per cent total time worked	4.7	4.9	7.5	7.8	9.8	9.6	11.3	12.4
Carmen C and D								
Straight time hours worked	9,686,352	10,973,421	11,224,175	12,001,414	11,063,216	11,636,389	11,432,328	10,566,135
Overtime hours worked	489,762	498,711	787,556	813,684	911,603	976,858	1,182,227	1,171,801
Total hours worked	10,176,114	11,472,132	12,011,731	12,815,098	11,974,819	12,613,247	12,614,555	11,737,936
Overtime worked, per cent total time worked	4.8	4.4	6.6	6.3	7.6	7.7	9.4	10.0

scarcely likely to become a major factor in the solution of the problem as a whole.

Reduction of the lower age limit for the employment of apprentices is providing some relief for the growing difficulty of keeping up an adequate apprentice ratio. Raising the age limits for helper apprentices is also effecting some relief at this point.

Reemployment of pensioners whose health is sound is providing some competent and skilled employees, but such men are too few to be a major factor in offsetting the persistent attrition of forces. The best prospect for an appreciable restoration of lost manpower is offered by the employment of women.

The question of how extensively women can replace men in the mechanical department is one on which there are still considerable differences of opinion. There is probably fairly general agreement that they can be used effectively in place of much of the unskilled labor, particularly for coach cleaning and many of the unskilled jobs about shops, enginehouses, and repair tracks. Opinions will vary much more widely, however, when it comes to their employment on skilled jobs within the various crafts. One difficulty in getting the full effect of the employment of women within the employment classifications for which they are acceptable is the fact that the men lost to the draft do not necessarily all come from those jobs. As the pinch becomes more acute, it will become necessary to negotiate changes in employment among the remaining men in order that the acceptable opportunities for the employment of women may all be fully utilized.

In his paper before the American Society of Mechanical Engineers last December, F. K. Mitchell, assistant general superintendent motive power and rolling stock, New York Central, presented a table of mechanical-department jobs which, in his opinion, can be filled by women. This table included 131 work classifications in which there are a total of 1,857 positions on the New York Central—about 6¼ per cent of the total mechanical-department forces. While 115 of the work classifications call for skilled or semi-skilled employees, it should be noted that 1,459 of the 1,857 positions are in the unskilled classifications, the largest of which are car cleaners, laborers and engine cleaners—groups in which possibilities of reassignment are the least promising.

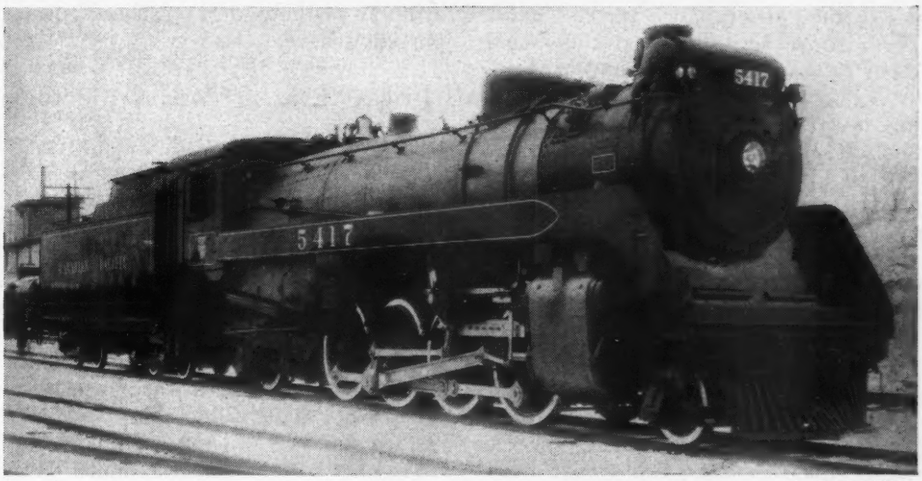
It seems evident that all of the expedients for replacing lost manpower are not going to make it possible to maintain the mechanical-department forces at their present levels, let alone increasing them to meet the probable increase in need for repairs to cars and locomotives later in the year. This is particularly unfortunate because there has already been some deferring of heavy repairs which should be restored and which, whether restored directly or not, will create increasing work for the repair forces by way of more frequent needs for running and light repairs.

New Among Track Workers Are Women, Who Are Finding an Increasing Place in the Track Forces of a Number of Roads

Rates in the South

To the South, it is far more important that it shall have railroads financially strong enough to meet the demands of its traffic. than that it shall have rates a little higher or a little lower, made on this theory or that. For many years rates have been worked out between shippers and railroads, subject to the final authority of the public regulatory bodies. They have been adjusted in an effort, and a reasonably successful effort, to meet the infinitely varying needs of our commerce. They have not been made wholesale by political processes and pressures—and for the sake of the South, particularly, and of its railroads, as well as the nation as a whole, let us hope that they will not be.

—From a Recent Speech by Col. R. S. Henry at Nashville.



C. P. R. Photo

New 2-8-2 Is One of 84 C. P. R. Has Acquired Since War's Beginning

Canada's Railways in Tie with U. S.

Dominion's increase in traffic over 'Twenties almost exactly equal to U. S. ratio—Canada's carriers are also manufacturers

THE services of the Canadian railways to their country at war bear striking similarity to those of the railways south of the border to the government and people of the United States. Indeed, the war level of railroad traffic, compared to that of the pre-depression period, has risen in almost identical ratio—for both freight and passengers—in the two countries. This extraordinary parallelism is graphically portrayed in two charts on the next page, showing traffic in both countries in each of the past 15 years, expressed in percentages of the traffic average for the years 1928-29. These two years, rather than just one of them, are taken as a base for comparison—because the end of the prosperous 'Twenties came earlier in Canada than it did in the United States; 1928, rather than 1929, was the Dominion's big pre-depression year.

Many Similarities, a Few Differences

It would not be accurate to say that wartime experiences of the railway systems of the two neighboring countries have been so nearly identical that the differences are insignificant. On the contrary, there are a few noteworthy contrasts—some of which will be mentioned hereinafter. But these distinctions, however interesting, are certainly less significant than the fact that 1942 freight traffic in Canada was 45 per cent above the 1928-29 average; while 1942 saw U. S. freight ton-miles at 44 per cent above the same pre-depression years. Similarly, passenger traffic in the United States in 1942 was 71 per cent higher than in 1928-29, and, in Canada, 73 per cent higher.

Previous articles in this issue have recounted in some detail the measures by which the railways of the United States have so largely increased their service, despite scarcities of labor and materials. From the fact that the service of the Canadian lines has increased in practically identical ratio, there is cogent presumption that measures of comparable effectiveness in promoting transportation efficiency have been in operation in the Dominion. This, of course, is not to be wondered at—since the two countries interpenetrate each other with their railways.

Unprecedented National Neighborliness

This continent affords the unique spectacle of a railway, owned by the government of one country, traversing great mileages of its neighbor, and actively competing for traffic therein—and not doing so on a basis of extraterritoriality or for imperialistic purposes, but just as a matter of straight business, enjoying no advantages and subject to no handicaps not common to other carriers domiciled locally. Moreover, it is not the government of the numerically larger of the countries which operates commercially in the domain of its smaller neighbor, but just the other way around.

Considerable astonishment has been expressed at the degree of international amity evidenced by Canada's permitting the Alcan highway to be constructed by the United States government across Dominion territory—but no traditions were thereby shattered, as is testified by long operation of Dominion-owned railways within U. S. territory. The Alcan highway is merely the extension to another transportation agency of a principle of neighborliness already fully established with the railways.

That the railway systems of these countries are showing so-nearly-identical increases in both freight and passenger traffic strongly argues that both are equally alert to learn from each other ways and means of doing their work more effectively. The parallelism of these ratios also suggests that the industry and agriculture and the

military authorities of the two countries are also exerting themselves at an identical level of effectiveness, compared to standards of 15 years ago. This conclusion follows, because it is not the railways alone which account for a given volume of freight traffic—but also the productive efficiency of agriculture and industry which produce the freight to be transported. Moreover, since passenger traffic today is so largely military, the parity in the ratios of increase in that traffic suggests the assumption that there must also be a close parity between the degrees of effectiveness of the two countries on the personnel side of their military effort.

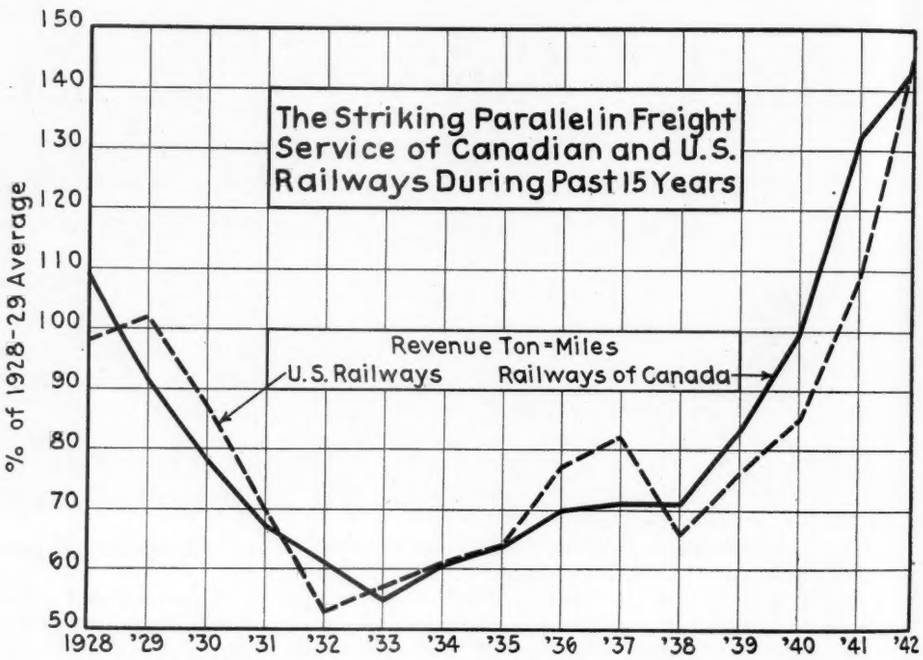
The collaboration of shippers and receivers of freight has been enlisted in Canada, just as it has in the United States, to reduce the amount of idle time (loading and unloading) of cars, and to bring about heavier loads per car. In the office of "Transport Controller," the Dominion has war-time governmental powers over transportation, similar to those exercised south of the border by the Office of Defense Transportation. The parallel is not exact, of course. Some specific instances of parallels and differences in the functioning of the two offices are cited in a short article immediately hereinafter.

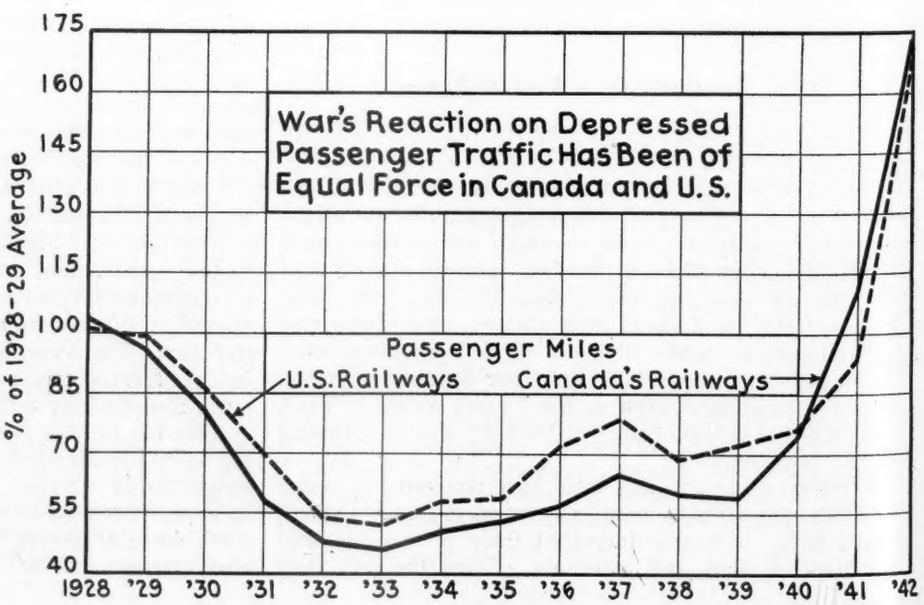
In neither country have the governmental authorities dealing with transportation shown an inclination to proceed with mandatory orders, when consultation with the parties at interest could secure the desired ends. The remarkable and practically identical success of the two countries in coping with transportation has had as its source, primarily, *voluntary democratic collaboration by carriers, customers and government officials*—as opposed to methods of economic or political dictatorship. Governmental authority has been used to fill the interstices between a multiplicity of acts of collaboration; it has not been the dominant influence, and coercion has not been resorted to except in situations where (as in the case of automobile traffic at a highway intersection) all parties are agreed that someone must accept the assignment of alternating the red and green lights.

Bearing in mind the important parallels between wartime railroading on the opposite sides of the border, it is instructive also to note some differences. The chiefest of these lie in the fields of wages and labor relations, in contributions by the railways to other phases of the war program besides transportation service, in policies as to freight rates, and in the comparative attitudes of the two governments toward post-war transportation development.

Prices "Frozen," Wages Fluctuate by Formula

Prices (including railroad rates) and wages were "frozen" in Canada at the October, 1941, level—except that, in the case of wages, a "cost of living bonus" is paid of $1.25 weekly for each rise of 5 points in the Dominion's official index, above the immediate pre-war (August, 1939) level. At the present time, this "bonus" amounts to $18.42 per month for employees whose basic wage is $100 per month or more, and to an increase of 17 per cent over basic wages for those receiving less than $100 per month as a basic wage—and may be compared with the considerable increase in wages awarded to employees of the United States railways in December, 1941, and the much larger increase their unions are now seeking. Basic wages of the Canadian railways were lower than in the United States prior to the





adoption of the "freeze" (a disparity which finds its primary explanation in the fact that the general level of wages in the Dominion is lower than it is south of the border).

Offsetting their somewhat more favorable wage costs, the Canadian railways' average earnings per ton-mile of freight are lower than the United States average (8.6 mills on the Canadian Pacific and 9.09 mills on the Canadian National, in 1942, compared to an average of 9.32 on the U. S. railways). How much of this difference may be due, rather to a difference in the character of traffic than to an absolute disparity in rates for similar movement, it is, of course, not possible to say. But the Canadian lines' rates have been "frozen" for two years —and without any "cost of living bonus" such as their employees enjoy (a rate condition under which the United States carriers also began to suffer, beginning May 15).

Aside from present wartime policies as to railway rates—the position of the Canadian government toward a railway rate basis to enable railways to hold their own in a competitive era has been much more liberal than that which has prevailed in the United States, so far.

As a concrete example, the Dominion, prior to the onset of the war, by specific legislative enactment, authorized the railways to establish "agreed charges" (i.e., preferential rates for shippers who would bind themselves by contract to use railway service exclusively for certain classes of traffic—thus enabling the carriers to eliminate the "stand-by" status to which some shippers tend to relegate them). So far no disposition—either by the regulatory or legislative authorities south of the border—has revealed itself as ready to accord to the United States railways similar power to cope with "pick and choose" competition.

This contrast in the official attitudes on the opposite sides of the border toward railroad rate-making has little significance, of course, while the war lasts. When the war ends—and for the long pull—it may turn out to be a most important contrast indeed, as far as the future well-being of the transportation systems of the two nations is concerned; and their ability to retain traffic sufficient to support continued efficient essential service for the needs of the economic life of the respective lands.

Railways Going into Aviation

In yet another aspect—important to the post-war outlook—there is a marked contrast in the governmental treatment accorded the railways of the two nations. That is, in their policies regarding authorizing them to engage in other forms of transport. The Canadian Pacific owns a rapidly-expanding air transport subsidiary (Canadian Pacific Air Lines), and the exploits of C. P. R. steamships in the present war are well-known to all readers of the newspapers. The C. P. R. hopes to expand its air lines into a world-wide service, comparable to that of its steamships, at the war's end (although the policy of the present Dominion government is to give the government-owned air line a monopoly in international service). At the annual meeting of the C. P. R., held a couple of weeks ago, President Coleman revealed that the company is even now planning the restoration of its steamship fleet, when the war is concluded—and has under study modern designs of ships to meet the competitive needs of that period, so far as they may now be foreseen.

The Canadian National has as an affiliate the Trans-Canada Air Lines (owned, as is the C. N. R., by the government), which has enjoyed a phenomenal growth in traffic and revenue—despite the constriction of its operations by demands of the war upon aircraft and personnel. The C. N. R. also is an operator of steamships on a considerable scale.

The fact that one of Canada's great railway systems is government-owned, while the other is in private ownership, does not make the competitive task of the latter an easy one in all cases, as is perhaps exemplified by the Dominion government's policy toward the airway affiliates of the two railways—the government-owned line being given a monopoly of across-Canada and international business, and the privately-owned line, so far, limited to a "feeder" status.

All-Round Transportation Companies

The two principal Canadian railway systems are not railways merely—but all-round transportation companies, with the active approval of their government. This condition affords quite a contrast with the treatment accorded by the United States to its rail lines, denying them by statute the right to operate on the water; and, as a practical matter of regulatory policy, prohibiting them from the air and obstructing their expansion on the highways. Not important at the present time, when all transportation facilities are used to the utmost, these contrasting policies are of great significance for the post-war period—and may determine whether that time will be one of orderly development in transportation of all kinds, or a haphazard crazy-quilt, with each agency developing as if other forms of transportation either did not exist, or had no reason in the public interest to do so.

There remains yet one more contrast, worthy of note, between the present situation and performance of the railways of Canada and those of the United States. That is, that the Dominion railways have gone much further into manufacture of munitions and other materials of warfare than have the United States lines. The difference here is a natural one. Canada's industry is not as large as that of the United States. Her railway shops were among her largest industrial plants—whereas railway shops of the same size or even larger, in the United States, made a much less significant comparison with available industrial establishments. It was natural under such circumstances that Canada should have been

C. N. R. Photo

Last Winter Was Not an Easy One in Canada

impelled to make a larger proportionate use of railway plant and managerial skill in the development of munitions manufacture than was necessary, or even desirable, south of the border.

The Canadian railways have taken on this ancillary war job, with the same adeptness with which they have handled the task of war transportation.

The railways and the users of railways and the government officials who deal with railways—on both sides of the border—are running neck and neck to see which will do the better job for their embattled fellow-countrymen. The indications are that the race will end in a tie, with nobody the loser except the Axis—and the fellows who said that a democracy, in order to fight a dictatorship successfully, had to turn into one itself. There is, probably, less dictatorship and more voluntary collaboration in transportation, on both sides of the border, than in any other phase of their respective war programs. Has any one any nomination for any phase of the war job in either country which is being handled more efficiently than transportation?

"Canada's O. D. T."

By L. J. Knowles*

WITH relatively few railways to deal with, the Canadian Transport Controller does not for administrative purposes require a staff of size proportionate to that of the O. D. T. His functions, however, include administration of what might be termed a traffic department for the Canadian government, requiring a considerable staff for the routing of war materials and the issuance of permits for overseas shipments of government freight and the movement of both government and commercial freight through the American ports. Here is another instance of co-operation between the Canadian and United States governments in the respect that the Canadian Transport Controller has authority delegated to him by the O. D. T. to issue O. D. T. permits for the movement of Canadian export freight through American ports.

The principal duties of the Canadian Transport Controller are to regulate and co-ordinate the movement of traffic of the Canadian railways generally, and in this connection orders have been issued for maximum carloading which are substantially similar to those in effect in the United States. Here again the points of agreement between the Canadian Transport Controller's orders and those of the O. D. T. are far more numerous than the points of difference.

The Transport Controller's Order No. T. C. 04F is patterned largely upon O. D. T. 18, and while the Canadian orders are marked by unusual clarity of expression in their wording, the Transport Controller was given the benefit—which was frankly acknowledged—of the experience of the O. D. T. organization in the spadework that was done by that organization before a semblance of a framework of O. D. T. 18 was possible. Points of similarity that are stressed in both orders may be briefly enumerated as follows:

Maximum loading of freight cars is required in both countries (since November 1, 1942, in the United States, and January 18, 1943, in Canada, except that a prior order—No. T. C. O3F—was issued October 9, 1942, requiring the maximum loading of refrigerator cars and severe penalties for the detention thereof).

Maximum capacity to which cars must be loaded is clearly defined in both orders.

Safe loading of freight cars is required (notwithstanding the other maximum loading provisions) so that no freight car is required to be loaded to such an extent as to create a transportation hazard, or to cause damage to lading, or injury to any person engaged in loading or unloading cars, etc.

Certain exemptions from the maximum loading requirements are permitted in both orders, although the exemptions vary to some degree, which will be referred to later.

Multiple loading of two or three carload shipments in a single car is provided for under each order.

Consignor is required to certify on his bill of lading or by a separate certificate what exemption he claims under the car-loading orders in both cases.

Permits may be issued by both authorities in the case of unusual circumstances to meet specific needs or in emergencies; similarly the chief operating officers or Division superintendents of the railways may issue permits, in order to avoid car or locomotive detention, etc.

Specific loading weights differing from the maximum capacity of freight cars have been prescribed by "directive" in the case of the O. D. T., and by supplementary orders (Nos. T. C. O4F-1 and T. C. O4F-3) in the case of the Canadian Transport Controller's administration.

Perhaps it is not strange, considering all of the factors, that the experience in administering these two orders by the respective authorities has worked out in almost an identical manner with respect to applications for permits to deviate from the orders in special circumstances. For example, the Canadian Transport Controller's permits average about one-tenth the number issued by the O. D. T., and Canadian traffic is about one-tenth of United States traffic. It has been found also (contrary to what was at first feared) that there has been no competitive rivalry between the superintendents of different railways at common points to see how many permits they could issue in favor of particular shippers, and the number of permits issued by railway superintendents in both countries has been practically negligible compared to the amount of traffic moving.

Exemptions. The O. D. T. order exempts dangerous articles, which may be shipped at the tariff minimum, whereas the Canadian order provides no such exemption, although occasional permits have been issued at lower than the minimum. The O. D. T. order also exempts freight moving in accordance with "cleanout," "remnant,' and "gathering rates and rules," while the Canadian order does not.

Stop-off to complete loading or for partial unloading. The only stop-off permitted under the Canadian order is that already provided for in a freight tariff, whereas the O. D. T. order provides for a single stop-off of any freight car in transit to complete loading or for partial unloading (with certain exceptions). The Canadian carriers and many of the Canadian shippers are opposed to a general stop-off arrangement to complete loading or for partial unloading, although it must be stated that some shippers are in favor of this, but up to the present it has not been granted.

In connection with multiple loading, the Canadian limitations are somewhat more generous than the O. D. T. order because of the prevalence of small communities. For this last-named reason also, the Dominion specifies many more loading minima, on specific commodities, at lower weights than those permitted by O. D. T.

(Photographs on the Opposite Page by Courtesy of C. N. R.)

* Commission Traffic Representative, C. N. R., on Leave to the Office of Dominion Transport Controller.

What War Agencies Are Doing To the Railroads

Carriers deal with not less than 25 bureaus whose exigencies occasion a mountain of costly paper work

By Carleton S. Hadley*

General Counsel, Wabash

SINCE Pearl Harbor, the railways have been subject to the jurisdiction and authority of at least 25 federal agencies, many of which may well be termed war agencies. They were subject to the regulations of certain agencies prior to the emergency period, but the number of regulatory agencies has grown rapidly in number and importance during the last 15 months. Obviously this presents a real problem and a tremendous increase in paper work. One wit has said that "the paper barrier constitutes a third front that is more formidable than any that the enemy has been able to establish."

The Interstate Commerce Commission remains the principal agency which regulates the railroads. It regulates their freight rates, their passenger fares, many phases of their service, the issuance of securities, the extension and abandonment of lines, and many other branches of the railroad business. The Interstate Commerce Act has always required voluminous paper work. Added to the Interstate Commerce Commission's supervision, during the war period, is the authority of the Office of Defense Transportation, which has even more drastic powers than the Commission itself. The ODT has issued many orders relating to the handling of freight and passengers, the use of equipment and the operation of railroads and terminals.

The War Production Board exercises powerful authority in its regulation of production and the resulting limitation on materials which the roads may obtain for new equipment and construction work, as well as for maintenance, repair and operating supplies. The conservation, limitation, priority and other orders of the WPB, and the regulations under its new Controlled Materials Plan, bring about an overwhelming barrage on the "paper front."

O.P.A. as a Make-Work Agency

Not far behind in the number of regulatory orders affecting railways is the Office of Price Administration, which fixes maximum prices and handles the rationing of many foods and other items. Since the buyer, as well as the seller, must comply with price schedules, it is incumbent upon the railways to keep in touch with the OPA price regulations. They must also be fully cognizant of the maximum prices which they may charge upon the sale of many commodities, such as second-hand machines, and of services of various types.

When it comes to rationing, the roads must keep up with the changes in food rationing programs, which affect the supplies of food available for dining cars, engineering and maintenance gangs, hospitals, and other establishments. Again, they are subject to the gasoline and fuel-oil rationing orders. In the case of rationing, they must not only go through the necessary steps to be able to keep sufficient food on hand, but they must conform to the ration banking orders and maintain separate ration bank accounts for each rationed commodity handled, and each department which furnishes food as a so-called "institutional user" must maintain separate accounts for each rationed food. For example, there must be several accounts for coffee, several for sugar, several for processed foods, several for meats and fats, and so on.

As an illustration of one of the hundreds of problems that arise under rationing orders, I cite the recent instance of a derailment in which several carloads of highly perishable rationed food were strewn along the right of way. The food could not be sold (as it would have been prior to the war) because no prospective purchaser could muster up enough ration points to acquire it.

Fuel, Labor Relations, Manpower

When it comes to the prices which railroads must pay for coal for locomotive fuel and other purposes, they must comply with the orders and price schedules of the Bituminous Coal division of the Department of the Interior, as well as with those of the OPA, and recently the Solid Fuels Administrator was granted authority over the coal industry, which he has exercised in the coal strike. Incidentally, this strike has brought forth from several agencies orders affecting the railroads.

Adjustments in wages and salaries are subject to approval by the chairman of the National Railway Labor Panel, but if the employees affected are not subject to the Railway Labor Act, the adjustments must be authorized by one of the several Salary Stabilization units of the Bureau of Internal Revenue. Such approval is required even though the adjustments may have resulted through a mediation agreement effected under the auspices of the National Mediation Board.

As to employment, the roads must keep informed as to the regulations of the War Manpower Commission, which prohibit certain transfers and the hiring of employees, except in compliance with rules of the United States Employment Service, and in certain areas plans have been put into effect which call for clearance of railway employment through the Railroad Retirement Board. In addition, the carriers are faced with the loss of male employees by operation of the draft, which is

* This article is an abstract of an address presented at the recent annual meeting of the Railway Tie Association.

conducted under the WMC through the Selective Service system.

Naturally, the draft has made and will continue to make inroads on railway labor in the 18-to-38-age group, numbering several thousand on each road. Employees in this category who occupy positions essential to the operation of the railways and presently not replaceable must be retained. When such persons are summoned for service in the armed forces, the roads must fill out and file forms with local draft boards for deferment of these irreplaceable men, and in some cases they must prosecute appeals from adverse board rulings. In this connection, many roads are now making a complete manpower inventory as a pre-requisite to determining what men they should seek to retain or release for service in the armed forces. On a railway which has thousands of employees, the paper work on the manpower situation runs into mountainous proportions.

It must not be forgotten that railway labor is covered largely by collectively bargained agreements with railway labor organizations, and many labor problems are aired before the National Railroad Adjustment Board. This procedure is entirely separate from that required by the new war agency regulations of wages and salaries and the transfer and employment of workers.

Wages and Finance

Moreover, wages and salaries are subject to certain minima set up by the Wage and Hour division of the United States Department of Labor under the provisions of the Fair Labor Standards Act. Thus the railroads have floors as well as ceilings for the compensation which they may pay. Despite this, requests of labor for increased compensation are referred to emergency boards created from the personnel of the National Railway Labor Panel, the decisions of which are subject to approval by the Office of Economic Stabilization.

Many roads are making every effort to reduce their debts, and some are issuing equipment-trust certificates, at current low interest rates, so as to use their cash to redeem securities bearing higher rates of interest. Security issues not only require approval of the Interstate Commerce Commission, but cause the roads to report to the Securities and Exchange Commission, if their securities are listed on a stock exchange. That body also exercises authority over the proxies which railroads may solicit from their stockholders, calling for elaborate proxy statements to accompany the solicitations.

Not to be overlooked are the wartime tax laws and the complicated income and excess-profits-tax regulations issued by the Commissioner of Internal Revenue. The tax problem is one of the most important, from a financial standpoint, with which the railways deal, and the tax laws and regulations become more technical and complicated each year. Each railroad has a corps of experts working on tax problems practically all the time. This, of course, is a contribution to the war effort, for today the railways as a whole are an important source of federal revenues.

I could describe at length the regulations affecting railways which are issued by the Secretary of War, the Secretary of the Navy, the Department of Labor, the Office of Economic Stabilization, and many more offices and bureaus too numerous to list. If a railway owns a radio corporation, as does the company which I represent, its subsidiary is subject to the rules of the Federal Communications Commission; if it owns boats, as does my company, it is subject to the regulations of the Coast Guard and the maritime agencies. I believe, however, that the foregoing will serve to illustrate the big "paper job" which confronts the railways while they engage in solving the greatest transportation problem with which they have ever dealt.

Takes Work to Keep Abreast of Regulation

When one realizes that the officers of every railway must master the hundreds of rules, regulations, orders, schedules, and directions put out by the 25 agencies—and this 25 covers only those agencies which exercise important authority, but does not include dozens more which touch railway operation from time to time—and then must keep up with the amendments, supplements and revisions which are issued daily, he wonders even more at the ability of the roads to continue day after day and night after night to do the job, do it well and still keep within the law. It is to be remembered that all this regulation is in addition to the many state statutes and the regulations of state public service commissions applicable to railways. The railway which I represent operates in eight states and in one province in Canada, all of which have many railroad statutes and regulations. This furnishes some idea of the magnitude of the task of carrier compliance with the laws of today.

The question naturally arises: How can they keep up with this veritable maze of paper work? The sole authentic sources for the validity of these many regulations is the Federal Register. This official publication, printed daily except Sundays and Mondays, contains the full text of all federal regulations, and it will be found in the law offices of every railroad. In those offices there will also be found some lawyer, who formerly looked to the federal statutes and court decisions to determine the law applicable to his company's problems, poring through this publication to learn the latest in federal wartime regulation, preparing to answer the scores of questions which other departments submit day after day.

The material is classified under 50 titles, each divided into parts and sub-parts, numbered serially, and within the parts are sections, paragraphs, and sub-paragraphs. The arrangement is logical and practical and after a little experience all goes smoothly. It affords an excellent system to enable the railways to cope with the ever-mounting mass of federal administrative law. To supplement this service, the government publishes the Code of Federal Regulations, which enables one to locate a regulation or order in minimum time, and most railway offices subscribe to one or more of the loose-leaf services which are only a few steps behind the Federal Register in point of time.

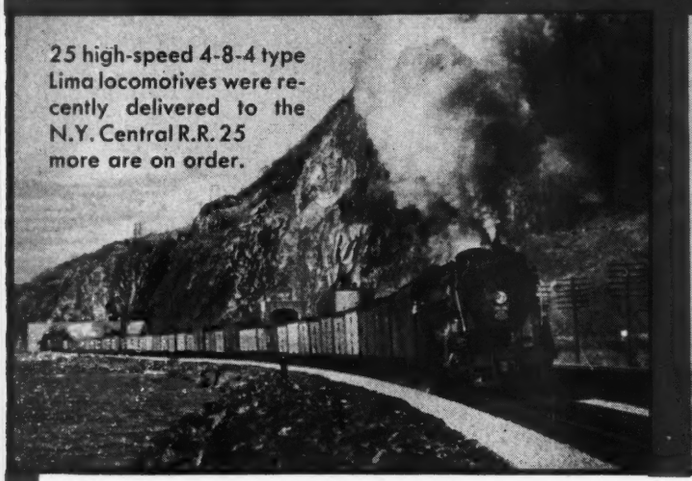
These services index the various regulations and keep them up to date with replacement pages when they are amended or supplemented.

An Exposition, Not an Indictment

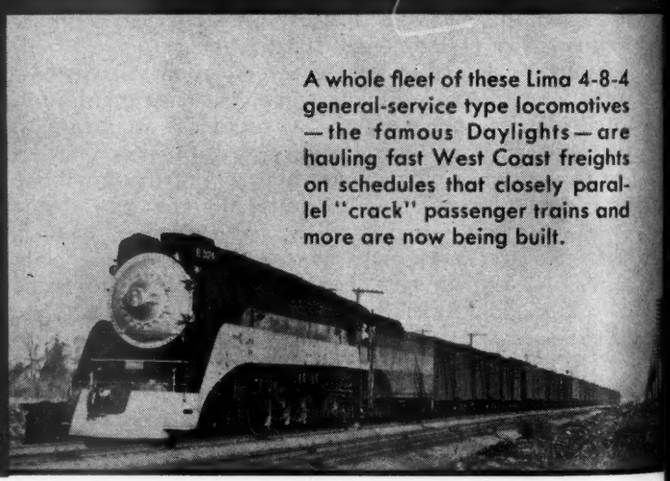
This paper is in no sense a complaint about these extraordinary regulations during times of war. The desirability of many of them is conceded. Just as the railways have proved that they can "take it" in moving a record transportation load with insufficient equipment, so have they proved that they can "take it" by doing that job in compliance with a vast volume of federal regulations brought about by conditions which this country has never before had to face. And, tough as the job may become, either on the operating front or the "paper front," they will continue to function as America's Number One War Agency.

Freight Progress STEMS FROM

One of the famous Lima-built Chesapeake & Ohio 2-6-6-6 type locomotives hauling vitally needed coal in the mountainous Allegheny region.



25 high-speed 4-8-4 type Lima locomotives were recently delivered to the N.Y. Central R.R. 25 more are on order.

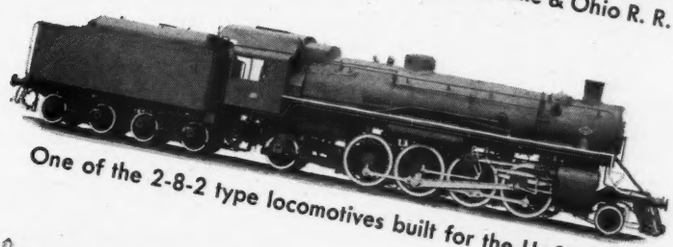


A whole fleet of these Lima 4-8-4 general-service type locomotives — the famous Daylights — are hauling fast West Coast freights on schedules that closely parallel "crack" passenger trains and more are now being built.

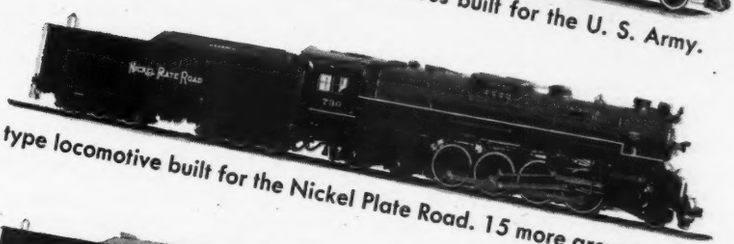
Freight progress is closely associated with locomotive progress. » » The new power that Lima has delivered to the railroads since the war commenced has been of great value in helping its customers keep pace with steadily mounting traffic demands. » » In addition Lima-built Army locomotives are doing their share in keeping military freight progressing behind the battlefronts.

Locomotive Progress

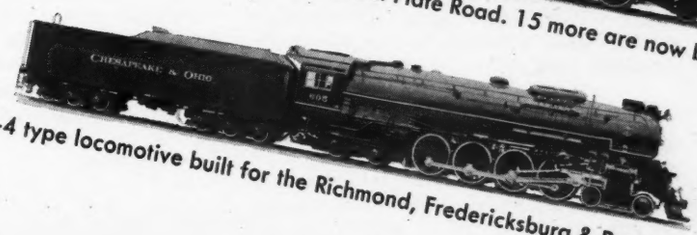
4-8-4 type locomotive built for the Chesapeake & Ohio R. R.



One of the 2-8-2 type locomotives built for the U. S. Army.



2-8-4 type locomotive built for the Nickel Plate Road. 15 more are now being built.



2-8-4 type locomotive built for the Richmond, Fredericksburg & Potomac R. R.

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LIMA LOCOMOTIVE WORKS INCORPORATED

Railroads-in-War News

Government Takes Over Another Road

Roosevelt puts ODT in control after strike ties up main Puerto Rican line

Acting at the direction of President Roosevelt, Director Eastman of the Office of Defense Transportation on May 14 took control of the American Railroad of Puerto Rico, operation of which had been suspended at noon on May 12 as the result of a labor dispute.

By the terms of the executive order, Mr. Eastman was directed to "take immediate possession" of the property and "operate or arrange for the operation of such railroad in such manner as he deems necessary for the successful prosecution of the war, through or with the aid of such public or private agencies, persons or corporations as he may designate."

Mr. Eastman was further directed to "manage or arrange for the management of such railroad under such terms and conditions of employment as he deems advisable and proper, pending termination of the existing labor dispute." In these respects the provisions of the order were similar to those under which the ODT took control of the Toledo, Peoria & Western in March, 1942. The current order, however, went on to direct the National War Labor Board to "make a final determination of the existing labor dispute" in Puerto Rico, retroactive to the date of federal possession of the road.

The executive order also authorized Mr. Eastman to employ the net earnings of the road for the discharge of "lawful obligations" and the "preservation" of its property, such advances not to be repayable before the final settlement of any claim of the railroad for compensation therefor. As was the case with the T. P. & W., the order provided that possession and operation of the road "shall be terminated when the President determines that such possession and operation are no longer required for the successful prosecution of the war." The Secretary of War was instructed to take, upon the request of the ODT, such action as he might consider "necessary or desirable to provide protection to the railroad property and to persons working for or seeking employment by the railroad." In assuming control of the road, Mr. Eastman appealed to the employees to return to their jobs, and press reports indicated that they responded to the request.

"No other way out of the controversy could be found," Mr. Eastman said in announcing that his office had taken over the road, which was described as vital to the war effort because 65 per cent of its business is military or other government traffic. The meter-gage road is the most important in Puerto Rico, the ODT explained. It nearly encircles the island, and on it depends the distribution of foodstuffs, and transportation of troops, military supplies and other vital freight to all parts of Puerto Rico.

"Over-all responsibility" for the road's operation under the ODT has been placed by Mr. Eastman in M. Garcia de Quevedo, a native of the island, who has had long experience with transportation problems, the ODT said, and who has been director of the ODT Division of Puerto Rican Transport since the extension of that agency's operations to the island in 1942. Mr. de Quevedo was on the staff of the Director General of Railroads in World War I, and later was employed by the Interstate Commerce Commission and the Department of Commerce. His principal assistants in operating the road will be O. Arthur Kirkman, executive vice-president and general manager of the High Point, Thomasville & Denton, who will be general manager, and C. D. Crandall, director of the Interstate Commerce Commission's Bureau of Accounts, who will be in charge of accounting and related activities. This combination of men with long railroad experience, said Mr. Eastman, "with the aid of the War Labor Board, will, I believe, bring about a satisfactory solution of a difficult problem."

Government Freight Via Canada Requires ODT Permits

Freight consigned by or to any agency of the United States or the United Nations for movement by rail or truck from any point in the United States to any point in Canada, or through Canada to any destination outside continental United States, became subject to the Office of Defense Transportation shipping permit system May 20, when General Order ODT 38 became effective.

This action, taken, the ODT said, with the approval of the Canadian government, extends to government and lend-lease freight bound to Canada and via Canada to Alaska and foreign countries the permit regulations previously put into effect on export shipments through United States ports. It will permit closer control of freight movements overland to Canadian ports and to Alaska, said the ODT, and will prevent congestion at Canadian rail gateways. An Association of American Railroads embargo, requiring permits for movement of freight by rail into Canada, will be lifted as this order becomes effective, the ODT added.

Not Enough Steel For Cars and Rail

WPB allotment fails to meet "minimum needs," analysis by Eastman reveals

Predicting that "serious consequences" are likely to develop unless the War Production Board's Requirements Committee allocates more materials—especially steel—for the transportation industry in general, and particularly for freight car construction and new rail, for the third quarter of this year, Director Joseph B. Eastman of the Office of Defense Transportation on May 14 made public some details of the equipment building program planned for the rest of the year on the basis of WPB allotments approved recently.

The ODT director's statement pointed out that the WPB in announcing third quarter allotments of controlled materials—steel, copper, and aluminum—had indicated that requests from claimant agencies amounted to more than 20 million tons of carbon steel, while the estimated supply in the third quarter will be slightly under 15 million tons. "All claimant agencies have suffered cuts," Mr. Eastman said. He did not add that the requirements of the ODT—claimant agency for the railroads and other forms of domestic transportation—had been cut around 40 per cent, a much larger reduction, relatively, than was imposed on other major claimant agencies, according to figures disclosed by the WPB Steel Division.

As a result of the Requirements Committee's over-all reduction in the ODT request for materials, the future railroad equipment and maintenance situation "is not too bright," Mr. Eastman warned. No materials could be allocated by the ODT for new freight cars beyond those previously authorized—that is, 20,000 cars approved during the first half of this year plus some 6,000 authorized in 1942 but not built before the end of the year—he said, and the ODT's program for essential replacement rail production during the third quarter has had to be curtailed "substantially."

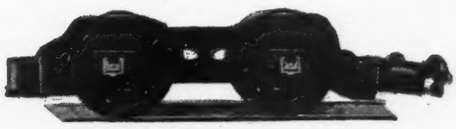
That the sharply reduced ration of steel allowed the railroads by the WPB was viewed with concern and alarm by the ODT was indicated by the tone and text of Mr. Eastman's statement. "The rail situation is being watched closely by this office," he said. "Should the amount of steel for this purpose prove inadequate to maintain the roads at reasonable operating standards, further steps will have to be taken. Obviously, rail cannot be allowed to

News Department continued on next left-hand page

Conserve manpower hours

Behind the remarkable wartime record of American railroads stands an unparalleled performance by American motive power.

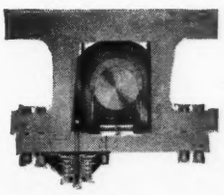
Contributing to this performance are a number of Franklin devices that make for increased capacity, dependability, and lower cost of maintenance with the reduced manpower forces of wartime.



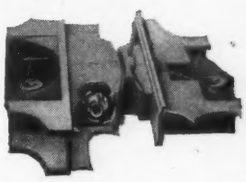
THE LOCOMOTIVE BOOSTER: The Locomotive Booster supplies supplementary power for starting heavy loads and for accelerating up to road speeds.

THE FRANKLIN SYSTEM of Steam Distribution

THE FRANKLIN SYSTEM OF STEAM DISTRIBUTION WITH POPPET VALVES: Applied to new or existing locomotives it is possible to obtain the maximum productive power of the boiler.

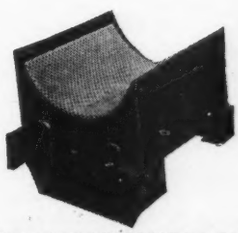


AUTOMATIC COMPENSATOR AND SNUBBER: By maintaining accurate driving box adjustment, the Franklin Automatic Compensator and Snubber greatly prolongs the life of every bearing on the locomotive and increases mileage between shoppings. It automatically compensates for normal wear and temperature changes.



E-2 RADIAL BUFFER: This Franklin device provides non-binding connection and eliminates slack between engine and tender. Its smooth, powerful action deadens vibration and provides improved riding qualities and safety of operation.

THE F-2 PRECISION POWER REVERSE GEAR: Provides accurate micrometer adjustment of cut-offs at all speeds, thereby permitting maximum efficiency of operation.



NO. 8 DRIVING BOX LUBRICATOR AND SPREADER: is light in weight, insures constant lubrication, and makes repacking easier . . . features which help to keep locomotives in service longer.

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO

In Canada: **FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL**

deteriorate beyond a certain point before being replaced. I shall pursue this matter, and also construction of additional freight cars, with the War Production Board."

That the danger of such deterioration is very real and very imminent was indicated by Mr. Eastman's comment that the reduction in the amount of steel available for rail for the third quarter may make it necessary for some carriers to reduce their standard of service. This problem is further complicated, he added, by the fact that rails are wearing out faster than under lighter peacetime use.

Unless the WPB finds it possible to allocate more material for the third quarter for transportation, new freight car production will have to be suspended after present schedules are completed, the ODT director explained. This, he said, would make the equipment situation "even tighter" in coming months than it has been in the past. Freight car production will not stop abruptly on July 1, however, he continued, as production of the 20,000 cars already authorized is expected to extend into the third quarter.

"In view of the greatly increased load on railroad freight carrying facilities, it is to be hoped that steel can be found for some additional new freight cars before the present production schedules are completed," Mr. Eastman said. "The railroads are carrying far more traffic now than they did during the last war and doing it with less equipment. Unless material can be found, at least for replacements, I fear that serious consequences may result.

"At the same time, it is the responsibility of the railroads to take every additional step they can to conserve equipment and improve the efficiency of their operations."

Although Mr. Eastman's statement did not reveal the steel tonnage allocated for third quarter maintenance and operations or for new rail production, it did indicate that domestic railroads will get about 258 new locomotives during the third quarter and 307 in the fourth quarter of this year, "on the basis of present production." The engines expected to be delivered during the third quarter, the statement said, will include 145 steam locomotives, 27 5,400-h.p. Diesel-electric road locomotives, 85 Diesel-electric switchers, and 1 electric locomotive. This program will maintain locomotive production "at full plant capacity," it was explained.

"With the exception of freight cars and rail," Mr. Eastman said, the "minimum needs" of all forms of domestic transportation for both maintenance and new equipment will be met by the third quarter materials allotment of the WPB Requirements Committee. While his statement gave no indication of the prospect for meeting even "minimum needs" in succeeding periods, WPB sources have made it clear that allotments of critical materials to all claimant agencies for the next 12 months can be expected on the basis of this year's third quarter allocations, under the Controlled Materials Plan, so that plans may be prepared in advance for use of the available materials. On this basis, 100 per cent of the available steel for the succeeding quarters would be consumed, leaving no prospect for additional allotments to ODT, or any other agency, unless a material increase in total steel output is achieved.

Total deliveries of new transportation equipment for the calendar year 1943, on the basis of present estimates, including deliveries already made, are listed by the ODT as follows: Locomotives, over 900; freight cars, 26,000 (including the carry-over from 1942); trucks, 7,500 heavy duty type, 9,200 trailers, and 2,100 third axles; buses and bus bodies, including conversions, 13,475; street cars, 230; tugs and towboats, 147; barges, 700.

Another ODT Travel Survey

Another Office of Defense Transportation survey of intercity rail and bus travel was scheduled to get under way May 21 and continue through May 27, covering 101 cities throughout the country. The survey is being conducted at the request of ODT by the Bureau of Census of the Department of Commerce.

Census representatives, stationed at railroad and bus terminals in the 101 cities, will interview a number of passengers departing on each schedule of a train or bus to determine "how and why their travel habits have changed as a result of war conditions." Similar surveys were made in May and October, 1942.

I. C. C. Service Orders

By Service Order No. 123, effective May 14, the Interstate Commerce Commission has directed railroads not to permit reicing after the initial icing of refrigerator cars loaded with potatoes at any point in Alabama, California, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee or Virginia when originating in these states. The order was issued, it was explained, because train movements have been unduly delayed by unnecessary reicing of such cars, contributing to shortage of equipment and congestion of traffic.

Amendment No. 1 to I. C. C. Service Order No. 115 (corrected) further limits the diversion or reconsignment privilege on fresh or green fruits or vegetables on southern railways by extending the territory within which such privileges are suspended to include any point in any or all of these states: Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. The suspension applies to these commodities originating at any point in the states mentioned. The terms of the original order were reported in *Railway Age* of April 10, page 728. The amended order became effective May 19, to remain in force until further order.

The expiration date of I. C. C. Service Order No. 118 was extended to June 1 by Amendment No. 1, made public following a May 13 meeting of Division 3 of the commission. The purpose of this order, as indicated in *Railway Age* of April 24, page 841, was to permit diversion of traffic routed via car ferry between Mackinaw City, Mich., and St. Ignace while that vessel was requisitioned for service as an ice breaker to aid in opening navigation on the Great Lakes.

Tank Cars Move More Oil East

More than 14,000 tank cars have been released from short-haul service to go into the Atlantic coast area pool through the Office of Defense Transportation's policy of substituting trucks and semi-trailers in this service wherever possible, an ODT May 19 press release said. This diversion is continuing as 1,092 new tank trucks and trailers are completed, and already "virtually all" of the air fields in Florida, Georgia, Alabama, Mississippi, and about half of Texas, are kept supplied with aviation gasoline by trucks, the statement added, pointing out that a "single large tank truck unit can do the work of about 12 tank cars on hauls up to 100 miles and of about six cars on hauls of 100 to 200 miles."

The ODT's evaluation of the effect of its restrictions on short-haul oil movements in tank cars was illustrated by a comparison of the situation in Iowa on January 10, when some 500 tank cars were employed under 1,662 ODT permits for movements under 200 miles, to that on April 10, by which time, the ODT said, 43 tank truck units had released 465 of these tank cars for the long-haul oil movement to the East coast, leaving outstanding only 267 short-haul permits involving 35 tank cars.

Meanwhile, the all-rail movement of oil into District No. 1 continued at the accelerated pace of recent weeks, Petroleum Administrator Ickes disclosed in announcing that the average daily tank car deliveries to that area reached a new high of 965,582 barrels for the week ended May 8, an increase of 2,784 barrels a day over the previous record, made the week before. A relatively large increase in deliveries by tank car in New England brought the daily average for that section up to 204,569 barrels, he added. In the same week, however, all-rail coal shipments to New England dropped to the lowest point in more than a year, said Mr. Ickes in another statement, in which he indicated that the effects of work "stoppages" was evident in the reports.

OPA Says Rate Cut Will Reduce Prices—"In Most Cases"

"More than $350 million will be saved on an annual basis by American consumers, including the government, and by producers, processors, and distributors" as a result of the Interstate Commerce Commission's action suspending the Ex Parte 148 freight rate increases, according to a May 14 press release from the Office of Price Administration. The annual saving in commutation fares, though "less impressive," is put at "a potential $5 million."

"In most cases," OPA assured the public, "the savings will be reflected automatically in reduced prices through the operation of existing minimum price regulations. . . . In from 15 to 20 instances where they will not be automatic, amendments are being issued to insure that the

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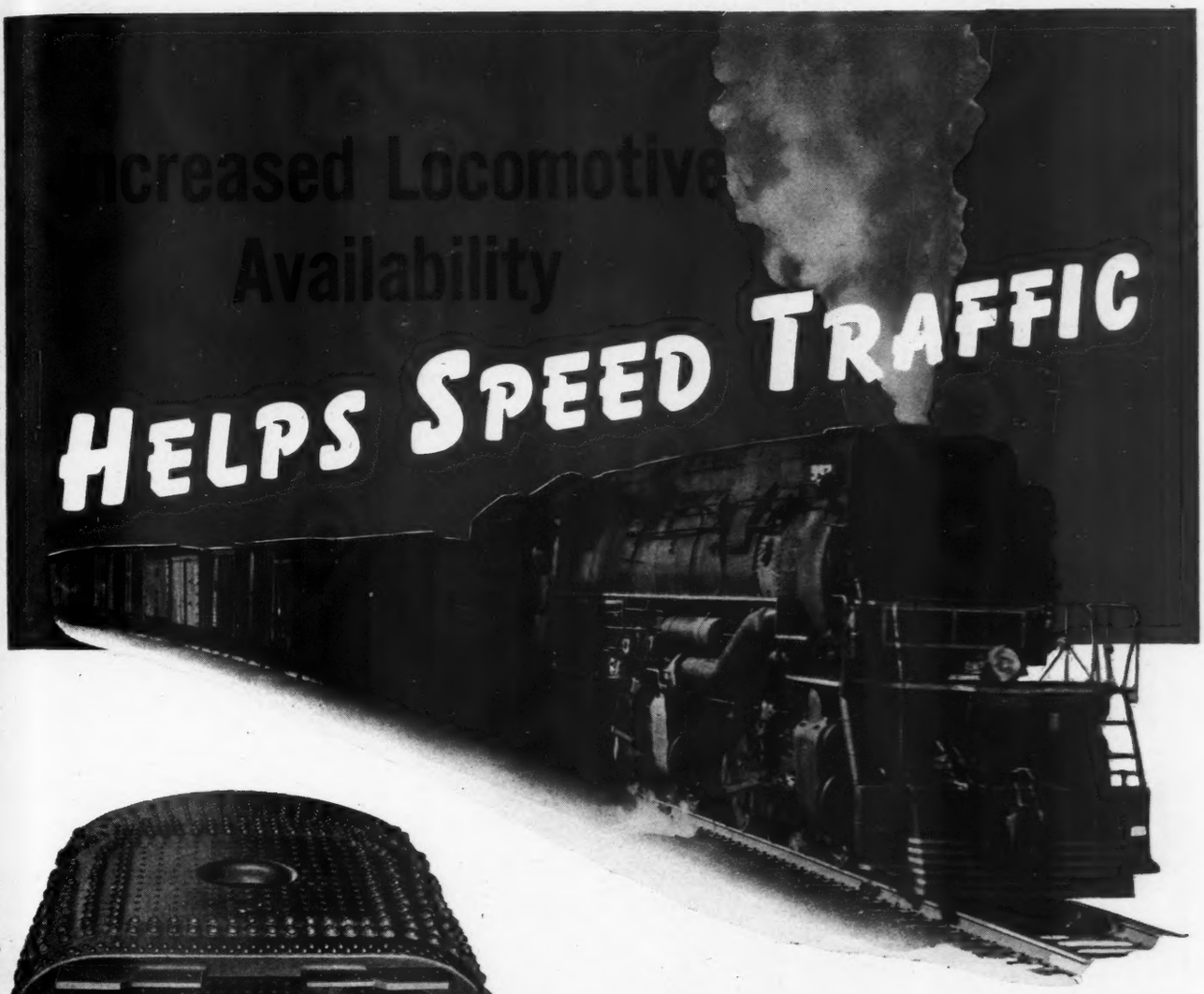
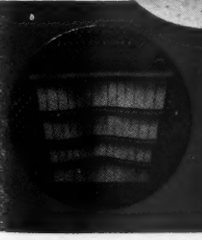
Increased Locomotive Availability

HELPS SPEED TRAFFIC



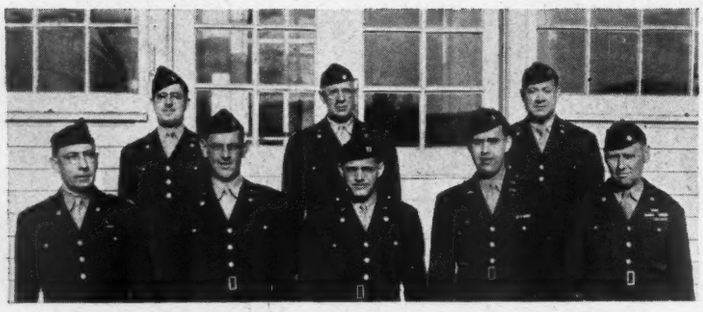
With locomotive building strictly limited, only better utilization of power has made possible the splendid traffic records achieved by American railroads.

Security Circulators (there are now 3548 of them in service and on order) are increasing locomotive availability. This is particularly valuable in these days when every locomotive hour is so sorely needed.



AMERICAN ARCH COMPANY
INCORPORATED · 60 East 42nd Street, New York, N. Y.
SECURITY CIRCULATOR DIVISION

More M. R. S. Officers Graduate at Fort Slocum



THE fourth class of officers of the Military Railway Service was graduated on May 15 at the Ft. Slocum, N. Y., Training School for Transportation Corps officers—and have now gone to join their battalions, which are being activated for training. Most of this graduating class came from the Southern Pacific, the Burlington and the Texas & Pacific, but 11 other roads are also represented in the group.

UPPER LEFT—FIRST ROW: Lt. Col. C. V. Conlisk (Brownwood, Tex.), 2d Lt. J. A. Brown (Babylon, L. I.), Capt. M. F. Savage (Battle Creek, Mich.), 2d Lt. R. L. Husted (Jacksonville, Ill.), Maj. J. E. Ausland (Wichita Falls, Tex.). BACK ROW: 1st Lt. V. A. Litchfield (Elkridge, Md.), Lt. Col. H. B. Hoyt (Salamanca, N. Y.), Capt. F. McGuire (Wilmar, Minn.)

AT LEFT—FIRST ROW: Capt. R. R. Gavin (Lincoln, Neb.), Maj. J. M. Aydelott (LaGrange, Ill.), 2d Lts. D. J. Lynch (Sheridan, Wyo.), W. H. Moore (Wichita Falls, Tex.). SECOND ROW: Capt. F. S. Palecek (Plattsmouth, Neb.), 1st Lts. E. S. Hendricks, Sr. (Chicago), C. R. Peffer (Duluth, Minn.), S. E. Tracy, (Aurora, Ill.), J. H. Stringer (Amarillo, Tex.). THIRD ROW: 1st Lts. J. G. Browne (Houston, Tex.), O. W. Nelson (Beardstown, Ill.), Capt. W. F. Jarl (Omaha, Neb.), 1st Lt. J. T. Borders (Casper, Wyo.). BACK ROW: 1st Lt. I. A. Frakes (Monmouth, Ill.), Capts. L. H. Ashby (St. Louis), W. S. Kerr (New York)

FIRST ROW: 2d Lt. W. W. McCormick (Big Spring, Tex.), Capt. J. R. Hackett, Jr. (Moultrie, Ga.), Maj. W. P. Schopper (Muskogee, Okla.), Lt. Col. A. C. Ogg (Ft. Worth), Capts. E. B. Jones (Arlington, Mass.), S. S. Williams (Marshall, Tex.), H. E. McMurry (Big Spring, Tex.). SECOND ROW: 1st Lts. J. L. Weatherby (Dallas, Tex.), R. S. Kemp (Arcola, Miss.), B. S. Swim (Dallas, Tex.), 2d Lt. R. C. Daniel (Ft. Worth), 1st Lts. H. Chamberlain (Cortland, Ill.), V. D. Flynn (Chicago). BACK ROW: 2d Lt. F. L. Scarborough (Ft. Worth, Tex.), 1st Lts. C. W. Shehane, (Phoenix, Ariz.), G. L. Pyott (Philadelphia), A. K. Van Sickle (El Paso, Tex.), J. T. Culpepper (De Leon, Tex.)

FIRST ROW: Capt. L. N. Brancfield (Yuma, Ariz.), Maj. H. W. Dieterich (Reno, Nev.), Lt. Col. S. H. Bray (Oakland, Calif.), Majs. P. E. Turner (Bakersfield, Calif.), F. K. Dobbins (New Orleans, La.), H. D. Fifield (San Francisco). MIDDLE ROW: Capts. W. F. Turner (Sacramento), N. A. Passur (Walnut Creek, Calif.), G. C. Carlson (Bakersfield, Calif.), C. O. Garrison (Bakersfield, Calif.), S. C. Hall (Los Angeles), B. A. Ream (San Francisco). BACK ROW: Capts. J. M. Hatcher (San Francisco), F. G. Clisham (San Francisco), 1st Lt. E. M. Hallam (Portland, Ore.), Capts. E. Pope (Oakland, Calif.), L. L. Moiser (Pasadena, Calif.), H. R. Demmon (Portland, Ore.)

News Department continued on next left-hand page .

OVER THE WASATCH MOUNTAINS

When power is required to haul a freight train of 100 cars over the Wasatch Mountains . . . large 2-8-8-4 type locomotives do it without helper.

These powerful modern locomotives are equipped with:

ELESCO SMALL FLUE SUPERHEATERS
ELESCO EXHAUST STEAM INJECTORS
AMERICAN MULTIPLE-VALVE THROTTLES

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
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THE SUPERHEATER COMPANY, LTD.

freight savings are passed on to the consumer." In a "number of instances," however, the saving "is being left at the producer or processor level to ease squeezes between the cost of raw material and ceilings imposed at those levels so that the line may be held at the consumer level. These involve mostly industrial producers, although in a few instances food processors are involved, too." In the food field studies are being carried on "with an eye to further rollbacks in prices that might be based on the reduced freights."

In a partial breakdown of the $350 million figure, the OPA release distributes estimated "savings" as follows: In the field of food, $42 million; fuel, $54 million; textiles, leather and apparels, $3.5 million; chemicals and drugs, $10 million; consumer durable goods "such as furniture and glass products," $2.6 million "or more"; machinery, including automotive equipment, $13 million; paper and paper products, $7 million; rubber, "less than $1 million"; industrial materials such as iron and steel, nonferrous metals, building materials and lumber, more than $74 million."

ODT Permit System for Coal on Great Lakes Routes

General Order ODT 9-A has been issued by the Office of Defense Transportation to establish permit requirements for the transportation of coal by rail to Great Lakes ports and the movement of coal on the lakes. The stated purpose of the order, which became effective on May 17, is "to make available more cargo space for the movement of war-essential iron ore." Meanwhile General Order ODT 9, "which provided less complete controls over the 1942 operations," has been revoked.

A "tentative policy" under the new order was announced on May 14 by ODT Director Eastman. It calls for the limitation of 1943 lake-coal movements from any United States port to the Buffalo, N. Y., and Chicago areas to 80 per cent of the aggregate quantity moved to those areas last year; to Lake Superior ports to 110 per cent of the volume moved last year; and to all other areas to 100 per cent of the quantity moved last season. However, only ships equipped with a belt conveyor unloading device will be allowed to move coal to the Detroit, Mich., area.

Coal shipments already made this season will be included in total shipments authorized. Through April 30 these amounted to 4,196,000 tons as compared with 5,984,000 tons loaded by that date in 1942. Applications for the permits may be made by receivers or trans-shippers to the ODT Great Lakes Carriers Division, Terminal Tower, Cleveland, Ohio.

ODT's action was due to the late opening of the lakes which has put this season's iron-ore movement under way with a "deficit" of 7,000,000 tons as compared with the same date last year. Approximately 3,858,000 tons of ore had been loaded by lake carriers through May 10, compared with the 11,005,000 tons loaded by May 10, 1942. The War Production Board recently cut this season's movement quota to 91,000,000 tons; and "ODT officials," as the press release put it, "expressed the hope that the concentration of efforts on the ore movement and the addition of new vessels will make possible achievement of the goal."

Loftis Becomes Assistant to Boatner in ODT

J. D. Loftis, Jr., mechanical assistant in the Division of Railway Transport, Office of Defense Transportation, has been appointed assistant to Director V. V. Boatner of the Division, succeeding James F. Haley, who resigned to accept a commission in the Air Transportation Corps. Mr. Loftis came to ODT from the Denver & Rio Grande Western in August, 1942, serving as locomotive assistant until his promotion to mechanical assistant last February.

Materials and Prices

Following is a digest of orders and notices of interest to railroads, issued by the War Production Board and the Office of Price Administration since May 8.

Conveyors—General Limitation Order L-287, issued May 3, restricts acceptance or delivery of portable conveyors or parts to those covered by approved purchase orders. An approved order is a purchase order bearing a preference rating of AA-5 or higher, if placed with or accepted by a manufacturer or dealer on or after May 10, 1943, or an A-1-c or higher rating if before that date. The order covers any new wheel or crawler-mounted conveyor of the belt, drag, flight or scraper type or portable hopper car track unloader used for the handling of loose bulk materials other than construction materials or excavated earth, but does not include conveyors mounted upon wheels designed to run on rails. After June 9, no person may manufacture, deliver or accept the delivery of any portable conveyor or parts unless manufactured in accordance with specifications and restrictions on the use of materials as prescribed in Schedule A.

Hand trucks—General Limitation Order L-111, as amended May 8, modified provisions regulating the use of iron, steel and other critical metals in the manufacture of hand trucks and related material-handling equipment. The amended order permits the use of ball bearings of other than alloy steel in swivel bearings or casters; permits the use of rerolled steel as well as Bessemer grade; clarifies the reference to ball bearings or roller bearings by specifying that the terms do not include certain pin bearings; and restricts the use of iron and steel so that trucks may not be produced entirely of metal.

Lumber, softwood—Amendment No. 3 to Maximum Price Regulation No. 22 (northern softwood lumber), effective May 8, increases prices on No. 1, 2 and merchantable grades of Northern hemlock boards $2 per m. bd. ft., and No. 3 and 4, $1 per m. bd. ft. At the same time, the prices of No. 1, 2, 4 and merchantable grades of dimension lumber were decreased $1 per m. bd. ft. The wider margin between boards and dimension is expected to encourage the production of boards. OPA stated that it is not considering revision of ceilings for boards in all species.

Lumber, Western—Limitation Order L-290, effective May 13, restricted the use of seven species of Western lumber almost entirely to essential military needs. The lumber includes all Ponderosa pine, sugar pine, Idaho white pine, white fir, lodgepole pine, Engelmann spruce and Western white spruce, except shingles, lath or railroad cross ties, produced in the states of Washington, Oregon, California, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico and South Dakota. Producers can sell or deliver the restricted lumber to the Central Procuring Agency of the Corps of Engineers, to other designated Government agencies, to Lend-Lease countries and to their contractors and sub-contractors. The order also provides that no person, including the armed services or other Government agencies, may purchase certain grades of the species for use in construction. The War Production Board may allocate certain quantities or percentages of the production or shipments to specified persons for specific uses without regard to any preference ratings assigned to particular purchase orders or contracts. The restricted lumber will be released through authorization on Form PD-872.

Machine tools—Limitation Order L-237, as amended May 4, makes clear that all light power-driven tools are covered by L-237, including electric, belt, pneumatic or hydraulic driven tools. The purchase or delivery of light power-driven tools on ratings assigned by a PRP certificate or applied pursuant to CMP Regulation No. 5 or 5A is not permitted by the amended order. The provision, however, does not apply to deliveries of items which had a producer's list price on October 15, 1942, of $175 or less, an increase from the original limit of $35. It also does not apply to deliveries by producers on purchase orders received prior to May 3, 1943, which have been rated pursuant to CMP Regulation No. 5 or 5A. Schedule A of the order omits purely woodworking tools which are covered to a large extent by Order L-83.

Pipe fittings—Limitation Order L-278, issued May 8, reduces the number of types of steel pipe fittings from 38,784 to 3,615. Iron and brass pipe fittings were simplified by L-288. The types permitted by the new order comprise about 98 per cent of the production. The order eliminates special jobs which interrupt the straight line production methods. Changes in specifications of materials and of pressure classes correspond closely with those of Order L-252, covering valves and valve parts. The chief reductions are in the number of sizes permitted for reducing fittings.

Rail and track fastenings—Schedule 7 to Order L-211, as amended May 7, listing specifications covering rail, angle bars, track bolts, track spikes and tie plates, permits the use of Bessemer steel in the production of rails and track accessories; also permits the use of 30 to 33 ft. rails in addition to the standard 39 ft. length in the manufacture of frogs and switches. No one may produce, fabricate, deliver or accept rails or track accessories which do not conform to the specifications in List 1 of the schedule. The provisions, however, do not prevent waiver of the inspection or test requirements of the prescribed specifications; delivery or acceptance of rails or track accessories which do not conform to the requirements, providing the requirements are waived by the purchaser; the production, fabrication, delivery or acceptance of Bessemer steel rails, if specified by the purchaser; and the production, fabrication, delivery or acceptance of 30, 33 or 39 ft. rails of No. 1 classification with A rails for use in the fabrication of frogs, switches and crossings.

Railroad repairs—Direction No. 7 under CMP Regulation 2, issued May 3, contains action to insure the maintenance of adequate stocks of materials for emergency repairs by railroads and other systems of transportation by permitting an operator to maintain materials for emergency repairs to the extent authorized under Preference Rating Order P-142.

Roofing steel—Order M-21-e, as amended May 3, permits the use of terne plate for maintenance and repair of roofing. Black plate or sheet steel coated with lead recovered from secondary sources and containing not more than 2½ per cent residual tin are exempted from the provision of the order.

Coal—Pursuant to executive orders taking over the operation of all coal mines, effective May 2, pending the settlement of wage disagreements, H. L. Ickes ordered a six-day week and directed the mines to pay time and one-half for the sixth day.

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GENERAL NEWS

I. C. C. Reports on Tie Plant Accident

Commission recommends block signals to avert mishaps of this variety

Recommending that the Chicago, Rock Island & Pacific install a block signal system on the line between North Little Rock, Ark., and Cotton Belt Junction, where a head-end collision between a westbound passenger train and an eastbound troop train occurred April 4, resulting in the death of the engineers of both trains and the injury of 49 passengers, 2 railway mail clerks, and 20 employees, the report of the investigation made under the direction of Commissioner Patterson for the Interstate Commerce Commission attributed the accident specifically to the failure of the crew of the troop train to clear for the passenger train at North Little Rock, as required by train orders and operating rules.

The collision occurred a 12.20 p. m. at a point 1.43 miles east of Tie Plant, Ark., at a point where the view of enginemen was materially restricted because of buildings adjacent to the track and track curvature. At the time they discovered the opposing train the speed of the troop train was about 40 m.p.h. and that of the passenger train about 65 m.p.h. At the point of collision the speeds were estimated at 10 and 50 m.p.h., respectively. Other circumstances of the accident were described in *Railway Age* of April 10, page 746.

Pointing out that the troop train was not authorized to proceed beyond North Little Rock, 3.73 miles west of the point of the accident, the report comments that the other members of the crew of the train were aware of this, but "depended upon the conductor and the engineer to comply with the rules."

The conductor testified that he was confused as a result of what the report termed the irregular procedure by which, under the dispatcher's instructions, he registered his train at Little Rock as Second No. 112, in order to avoid the issuance of an annulment order, even though the equipment of the troop train had ceased to operate as Second 112 and had begun to operate as Extra 1703 when crews were changed at Biddle, a point 2.3 miles west of Little Rock. The schedule of No. 112 was superior by direction to that of the westbound passenger train, No. 45, but no orders had been issued for the operation of Second 112 east of Little Rock and No. 45 had received no orders restricting its movement. Whether the engineer of the troop train was similarly confused was not determined, as he was killed in the accident.

Representation of Employees

Following an investigation and check of representation authorizations, the National Mediation Board has certified the Brotherhood of Railroad Trainmen as the Railway Labor Act representative of Yazoo & Mississippi Valley motor car operators. Another recent N. M. B. announcement revealed that the B. of R. T. had withdrawn a request for a determination as to who may represent yardmasters of the Cincinnati, New Orleans & Texas Pacific.

April Operating Revenues 29.1 Per Cent Above 1942

Preliminary reports from 89 Class I railroads representing 81.9 per cent of total operating revenues, made public May 18 by the Association of American Railroads, show that those roads in April had estimated operating revenues amounting to $605,457,233, compared with $469,072,314 in the same 1942 month, or an increase of 29.1 per cent.

April freight revenues of the 89 roads totaled $463,723,240 as compared with $382,817,263, an increase of 21.1 per cent. Passenger revenues totaled $101,483,074 as compared with $54,308,156, an increase of 86.9 per cent.

April Employment 8.39 Per Cent Above 1942

Railroad employment increased 1.61 per cent—from 1,323,686 to 1,345,021—during the one-month period from mid-March to mid-April, while the April total was 8.39 per cent above the comparable 1942 figure, according to the latest summary of preliminary reports prepared by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics. The index number, based on the 1935-1939 average as 100 and adjusted for seasonal variation, was 133.9 for April, as compared with March's 133 and April, 1922's 123.6.

April employment in all groups was above the previous month and April, 1942. In the latter connection the largest increase was the 12.69 per cent rise in the transportation group embracing yardmasters, switch-tenders and hostlers. Next in turn came professional, clerical, and general, up 10.76 per cent; transportation, other than train, engine, and yard, up 9.02 per cent; and executives, officials, and staff assistants, up 8.07 per cent. Increases over the previous month ranged from 4.24 per cent (maintenance of way and structures) to 0.34 per cent (train and engine service).

Permanent Study Board Suggested

B. I. R. Member Childe would keep Congress up to date with continuing studies

Because he is convinced that "no temporary body can, by intermittent effort," inform Congress completely or keep it up to date on a rapidly-changing subject "of such vast magnitude and importance" as transportation, C. E. Childe, a member of the Board of Investigation and Research created by the Transportation Act of 1940, is of the opinion that such a task should be assigned to a permanent federal agency, "created by and responsible to Congress, reporting to the President and to Congress." If the B. I. R. were transformed from a temporary to a permanent body, it would meet those specifications, although M. Childe did not get that specific when he spoke along the foregoing lines at a recent Washington, D. C., meeting of the Southern Policy Association.

A signer of the Board's majority report on interterritorial freight rates, which recently recommended Congressional action directing the Interstate Commerce Commission to establish a uniform classification of rates throughout the country within a period of three years, Mr. Childe devoted most of his talk to that subject, going "all out" for that Southern point of view which holds that the present rate structure is discriminatory. The address was inserted into the appendix of the May 13 Congressional Record by Senator Stewart, Democrat, of Tennessee.

Describing himself as "an advocate of the policy of equality of opportunity—equal rates for equal services," Mr. Childe asserted that this doctrine, which he called the purpose of the Interstate Commerce Act, has been "largely defeated by the doctrine of charging what the traffic is supposed to be able to bear—that is, letting competition fix the rates." Rates initiated by the railroads on the latter basis, he said, have been "presumed to be just and reasonable, unless they were proved to be unlawful."

The B. I. R. member further asserted that the country "must decide either to adopt the principle of equal opportunity to all as our national transportation policy, and establish definite rules and machinery for making that policy effective, or we must accept rate inequalities conforming to individual needs and competitive stresses as inevitable." Mr. Childe's own view is that rates "should as nearly as possible reflect equal charges to all shippers in re-

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lation to the cost of the service rendered by the carrier"; and he believes "that has been the purpose of Congress in all of the transportation legislation enacted from the original Interstate Commerce Act of 1887 to the present time." He does not, however, think this purpose can be accomplished "until we have a better understanding of the facts and until we adopt additional legislation to achieve our desired objective."

In the former connection, Mr. Childe did not have in mind "the technical understanding which is the stock in trade of the specialist," but "a common-sense general understanding which the layman, the businessman, the government official, and the legislator should have in order to deal with the problem effectively." He called the controversy over interterritorial rates "a typical example of how good and earnest people can violently disagree because they don't have a full understanding of the facts." As Mr. Childe appraises the issues generally, "the South and West are relatively poor in industry and wealth, although they are rich in natural resources"; and "inequalities in freight rates are one of the handicaps which are holding them back."

"The shipper in the South or in the West, who has not been provided with a special commodity rate," he said, "must stand the burden of the higher class rates which are charged in the South and West; thus placing him at a disadvantage against competitors in the East, where the class rates are much lower, also at a disadvantage with competitors in the South and West who may enjoy lower special commodity rates. Such special commodity rates are generally established only after the traffic has developed. High class rates tend to penalize the small shipper trying to establish a new industry and the small locality, which has not built up a large amount of competitive traffic. Such discriminations in rates discourage the spreading and diversification of industries whose products are subject to the payment of high class rates. These handicaps should be removed if the policy of equality of opportunity is to be followed."

A "definite plan" for their removal, Mr. Childe said later, is embodied in the Board's interterritorial rate report. He believes that the legislative action there recommended "would be the greatest step that can be taken toward uniformity and that such a step is highly desirable." He pointed out, however, that the recommendations deal only with class rates, which, though "important, affect only a small proportion of the tonnage transported"; and that the question of whether or not commodity rates are "fairly adjusted" would remain. Only "painstaking, exhaustive, and impartial research" will answer that question; and that is one of the jobs which Mr. Childe would assign to the permanent agency which he recommends.

Also, he would put the agency to work in an undertaking to satisfy the "crying need for reliable information on the transportation needs of our country, for peace and war, and how to get and maintain the facilities for supplying those needs, the types of transportation which will be the best and cheapest, the rates which should fairly be charged for their services." B. I. R., as Mr. Childe put it, hopes "to give you within the span of our existence much more light on these questions than has heretofore been available."

Freight Car Loading

Carloading figures for the week ended May 15 were not available at the time this issue went to press.

Loadings of revenue freight for the week ended May 8 totaled 816,551 cars, and the summary for that week, compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, May 8			
District	1943	1942	1941
Eastern	159,203	161,628	178,697
Allegheny	180,781	187,523	187,874
Pocahontas	47,794	57,012	57,006
Southern	120,314	124,827	114,901
Northwestern ..	115,259	133,912	136,311
Central Western	119,482	110,545	113,751
Southwestern ..	73,718	63,839	48,609
Total Western Districts	308,459	308,296	298,671
Total All Roads	816,551	839,286	837,149
Commodities			
Grain and grain products	45,615	35,143	35,118
Live stock	15,688	11,690	12,193
Coal	142,140	167,336	139,056
Coke	13,523	14,289	12,855
Forest products	44,818	50,618	40,567
Ore	66,976	86,800	78,400
Merchandise l.c.l.	98,125	98,430	162,887
Miscellaneous ..	389,666	374,980	356,073
May 8	816,551	839,286	837,149
May 1	788,783	858,911	794,299
April 24	794,194	861,357	721,627
April 17	780,908	846,505	708,793
April 10	789,018	814,096	679,808
Cumulative Total, 19 Weeks...	14,401,502	15,205,395	13,812,063

In Canada.—Carloadings for the week ended May 8 totaled 66,637, as compared to 63,974 in the previous week and 66,690 in the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
May 8, 1943	66,637	38,268
May 1, 1943	63,974	37,572
April 24, 1943	60,454	38,072
May 9, 1942	66,690	31,725
Cumulative Totals for Canada:		
May 8, 1943	1,164,667	698,523
May 9, 1942	1,178,113	607,165
May 10, 1941	1,053,896	547,118

Canada Takes Steps to Limit Summer Travel

Concentrated vacation travel in July and August must be avoided this year if bus and rail lines are successfully to cope with passenger traffic in Canada this summer, according to a joint statement issued last week by Transport Controller T. C. Lockwood and Transit Controller George S. Gray. Employers throughout Canada have therefore been urged to adopt a policy of staggered vacation leaves, beginning and ending at mid-week periods, to reduce travel congestion throughout the summer in general and at week-ends in particular.

"The usual midsummer and week-end peaks must be leveled off," says the statement, "and we are asking business and industry to get behind a policy of scheduling employee vacations throughout the year, instead of concentrating them into the summer months. We are also asking them to begin and end all employee vacations on Tuesdays, Wednesdays, and Thursdays from now on."

In addition, employers are asked to help conserve travel facilities by supporting a policy of avoiding unnecessary train or bus travel at all times. The public is being urged to spend vacations at home or as near home as possible and to limit vacation trips by rail or bus to one round-trip. Special stress is being placed on avoidance of travel on Fridays, Saturdays, and Sundays.

1942 Income Largest for Rock Island

The income of the Chicago, Rock Island & Pacific in 1942, was the largest in the history of the railroad, according to a report made to the District Court at Chicago by Joseph B. Fleming, trustee. After the payment of interest and Federal income taxes, the net income amounted to $35,112,693, compared with $17,663,753 in 1941 and $23,404,491 in 1929, the previous all time peak. Gross revenues in 1942 were $10,654,424 less than in 1929. As applied to the Interstate Commerce Commission's plan of reorganization for the road, the report states, income was sufficient to provide $29,575,000 for fixed and contingent interest, Federal taxes, sinking funds, capital funds and preferred stock dividends and leave a balance of income of $11,285,000.

The total tons of revenue freight moved one mile in 1942, the report continues, exceeded the tonnage of any previous year in the history of the road and surpassed the previous all-time peak of 1929 by 18 per cent but despite the substantially increased volume of freight handled in 1942, the revenue was less than in 1929, due to a constant decline during the intervening years in the average revenue received per ton mile. The average rate received from all freight was 1.15 cents per ton mile in 1929 compared with 89 cents in 1942.

Of the gross operating revenues for 1942, 26.67 per cent was brought down to net railway operating income, the largest percentage in the annals of the railroad. Increased wages in 1942 are shown to have cost the railroad $6,690,000, as compared with increased revenues of $6,088,000 derived from increased fares and rates allowed in that year by the I. C. C. in Ex Parte 148 but suspended on May 15, 1943. For the balance of 1943 the costs to the railway will be $3,500,000 because of the suspension.

A. A. R. Board Approves Technical Research

Creation of a central research organization, under the management of a director of technical research, to engage in fundamental, basic research with a view to possible improvement in the engineering and mechanical aspects of railroading was authorized by the board of directors of the Association of American Railroads at its meeting in Washington, D. C., last month.

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The action was taken upon recommendation of the Subcommittee on Engineering and Mechanical Research of the Railroad Committee for the Study of Transportation.

The latter, as noted in the *Railway Age* of January 2, page 23, is the A. A. R.-sponsored group which has been functioning for some time under the chairmanship of Vice-President R. V. Fletcher. The Subcommittee on Engineering and Mechanical Research is one of its many subcommittees which were created to deal with various subjects, including "the probable post-war economic situation."

That is the assignment of the Subcommittee on Economic Study which is reported to be at work contacting industry for the purpose of forming an intelligent opinion as to the amount of traffic which will probably be available for all agencies of transportation and the extent to which it will probably be distributed among those agencies. Some 38 or 39 classes of commodities are being studied, "with a degree and attention to detail which have rarely been undertaken."

The work of the Committee is expected to be completed in a year, or in 18 months at the utmost.

Employees Urge U. S. to Take Over Pacific Electric

Members of the Brotherhood of Railroad Trainmen on the Pacific Electric whose demand for increased wages have been before an emergency board since March 1, passed a resolution on May 12, asking the government to take over and operate the railroad for the duration. The resolution charged needless delays in negotiations for increased wages and accused both the company and government agencies of sidestepping the wage issue. It also asked that all profits after the payment of operating expenses be applied to the war effort.

Applies Truck-Minimum Rule to Motor-Water Rates

The Interstate Commerce Commission, Division 2, has extended to a truck-water rate situation the commission's general rule to the effect that motor carrier minimum weights must not exceed the capacity of a vehicle, thereby drawing from Chairman Alldredge a dissenting-in-part opinion which expresses apprehension that such an interpretation may "handicap the free interchange of freight" by making other types of carriers "reluctant to agree to joint rates with motor carriers."

The rule was established by the commission in *Rugs and Matting from East to W. T. L. Territory*, 31 M. C. C. 193, 34 M. C. C. 641, the full commission's decision affirming Division 3 having been reviewed in the *Railway Age of* September 12, 1942, page 425. The present proceeding is I. & S. No. M-1822, involving suspended schedules wherein the Red River Barge Line and the Southern Motor Lines are proposing to establish new joint class and commodity rates between New Orleans and other points in Louisiana to apply over the Intracoastal Waterway between New Orleans and Beaumont, Tex., thence by truck between Beaumont and Houston.

Some of the proposed rates were lower than competitive all-water rates, and the majority report, reflecting the view of Commissioners Splawn and Patterson, ordered the suspended schedules canceled without prejudice to the filing of new rates which would result in charges equal to the all-water basis—"such rates to be subject to minimum weights no greater than the loading capacity of the equipment customarily used by respondent motor line."

It was with the latter phase of the decision that Chairman Alldredge did not agree. He did not think that the principle set forth in *Rugs and Matting From East to W. T. L. Territory* should be considered as controlling in a case involving joint rates of two different agencies.

"The construction of joint rates between transportation agencies of different kinds," he said, "presents an important question which should be approached from the viewpoint of obtaining practicable and workable rules. If the respondents herein are required to observe minimum weights represented by the capacities of the smaller of the two units or vehicles employed in the joint hauls, it follows that truckload minimum weights should be observed in connection with other joint rates in which motor carriers may participate with railroads or water carriers even in instances where the motor haul may be only 10 miles and the haul of the other carrier may be 500 miles. The water distance between New Orleans and Beaumont is much longer than the highway distance between Beaumont and Houston."

Moreover, Mr. Alldredge also believes that the Rugs and Matting case rule should be interpreted "so as to permit the establishment of minimum weights equal to the capacity of equipment customarily used throughout at least a recognized rate-making territory and should not be construed to mean the capacity of equipment operated by one carrier for a short distance between two points."

Briefs in Classification and Class Rate Investigation

The Interstate Commerce Commission has extended for one month, from June 30 until July 30, the time within which briefs must be filed in the Nos. 28300 and 28310 investigations of the class rate structure and Consolidated Freight Classification.

Burlington Material to be Used in Navy Cars

Material which the Chicago, Burlington & Quincy had on hand at the beginning of the war for the construction of freight cars in its own shops, and which was frozen by the War Production Board, will be used in the construction of cars for the Navy. A contract for the immediate construction of 170 special box cars has been placed by the Navy with the Burlington on a non-profit basis and about 90 per cent of the material that will be used in their construction will come from the frozen stock piles. The cars, which will be built at the Havelock, Neb., shops, will be 50½ ft. long and will have 10-ft. doors and special interior fittings for handling naval supplies. Work will be started in June and 10 cars will be completed a day.

Forwarder Adjustment to Ex Parte 148 Decision Delayed

Short-notice tariffs wherein freight forwarders sought to bring their rates into line with the rail adjustment resulting from the removal of the Ex Parte 148 increases on May 15 have been suspended for 30 days from that date by the Interstate Commerce Commission, Division 2. The Division, according to a May 14 notice from I. C. C. Secretary W. P. Bartel, "was of the opinion that sufficient opportunity had not been allowed interested parties to warrant permitting the tariffs to go into effect and accordingly suspended for a 30-day period to enable every one concerned better opportunity to know what is involved and to confer as to what should be done." The proceeding is docketed as I. & S. No. 5225.

Extends Rules Covering Motor Transportation of Explosives

The Interstate Commerce Commission's regulations governing the transportation of explosives and other dangerous articles by common and contract motor carriers have been extended to cover private carriers and movements in intrastate commerce. The extensions came in two orders which have been issued by the commission's Division 3 to become effective June 15—one in No. 3666 and the other in Ex Parte No. MC-13, No. 3666, and Ex Parte No. MC-3.

According to a May 12 notice from I. C. C. Secretary W. P. Bartel, the commission acted "because of the extraordinary increase in the production of explosives and other dangerous articles and the resulting transportation thereof by private carriers and others in intrastate as well as interstate or foreign commerce, and to coordinate regulation by the Bureau of Mines and the commission."

Scale Test Weight Cars Available Under Lease

The two self-contained railway track scale test cars of the National Bureau of Standards, one of which weighs 40,000 lb. and the other 80,000 lb., are now available for use on the railways for testing their scales under lease from the Bureau. Due to a shortage of funds and of trained personnel, the Bureau withdrew these cars from service last year, but, in the belief that they should not remain idle, a plan has been worked out and approved by the Secretary of Commerce, whereby, under a "revocable license," any railroad company desiring to do so, may lease one or both of these cars for testing scales on its system. A rental value of $8.00 a day has been fixed for the lease of the equipment, and inquiries concerning its availability should be addressed to the Bureau at Washington, D. C.

LOCOMOTIVES

THE CHICAGO, ROCK ISLAND & PACIFIC has been given authority by the District Court at Chicago to purchase 10 4-8-4 type freight locomotives.

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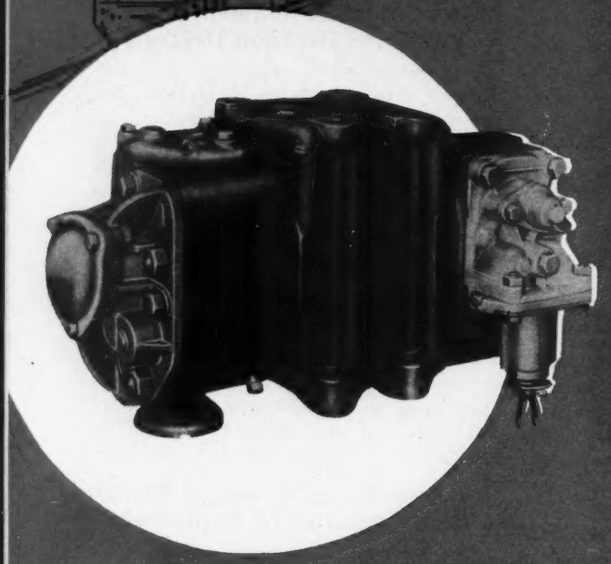
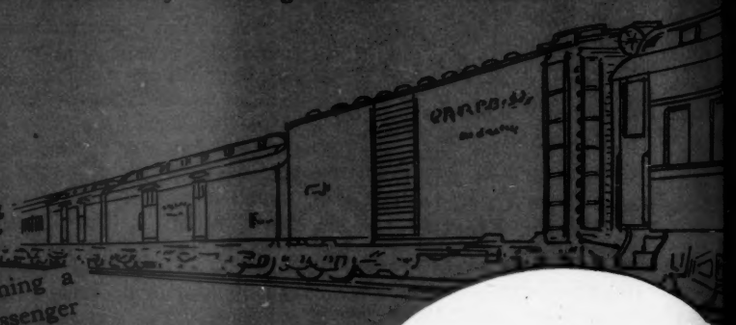
Our Contributions to



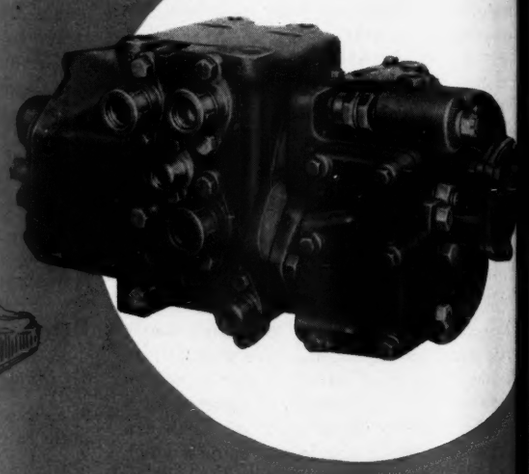
"AB" Equipment

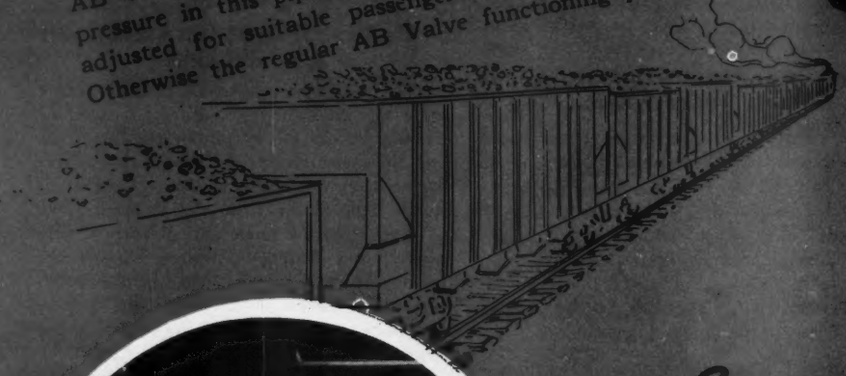
Cars rendering the most efficient service in regular freight train operation today are those equipped with the AB Brake—a development that has contributed to a new era of Freight Progress by providing superior means to safeguard cars and lading, expedite traffic movements, and increase availability of shipping facilities . . . Railroads having a major number of AB braked cars in service are in a favorable position to more successfully meet urgent wartime demands.

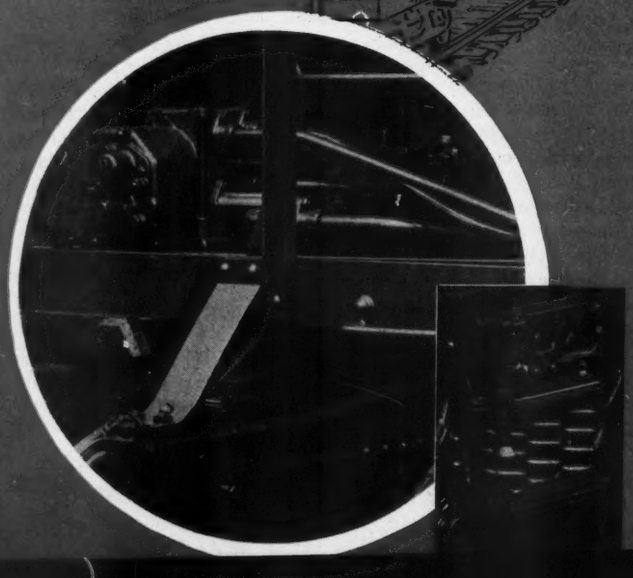


"AB-1-B" Equipment

For unusual operating conditions such as running a relatively short solid train of freight cars on passenger train schedules, or hauling several freight cars in a fast express, the AB-1-B Equipment was evolved. Supplemental features for meeting the braking needs of this alternating freight and passenger train operation are embodied in a Filling Piece attached to the standard AB Valve, and connected to the signal line. With pressure in this pipe, the equipment is automatically adjusted for suitable passenger brake performance. Otherwise the regular AB Valve functioning prevails.



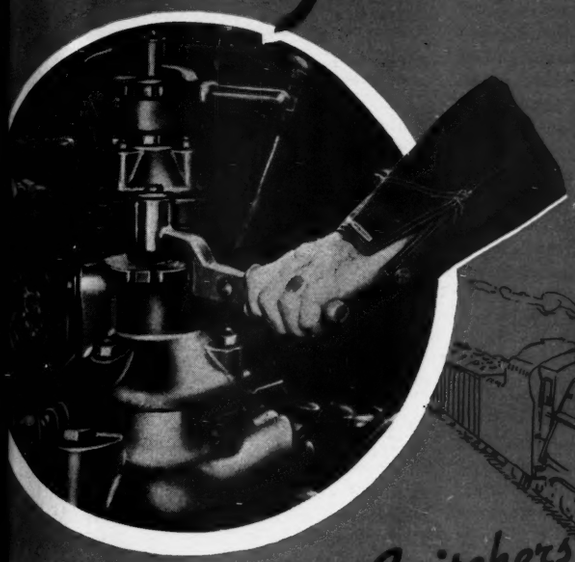




Empty & Load Equipment

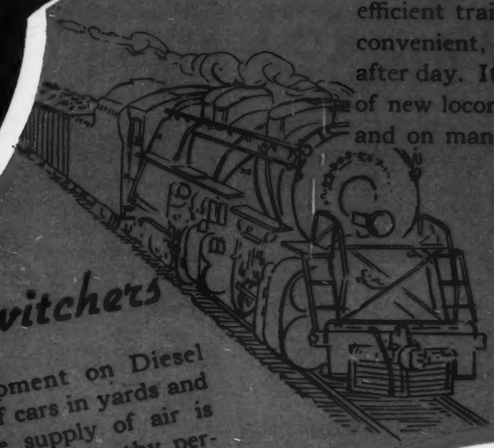
The dual operating problem of hauling heavy commodities in cars having high gross to tare ratio is met by the automatic AB Empty and Load Brake. Smooth handling of empty trains is assured, and adequate braking provided for loaded trains, which frequently operate on heavy descending grades . . . Thousands of these equipments are now performing satisfactorily on heavy tonnage trains hauling strategic raw materials. Their potential field of application will expand with anticipated increase in the use of light, high-capacity cars.

Freight Progress . . .



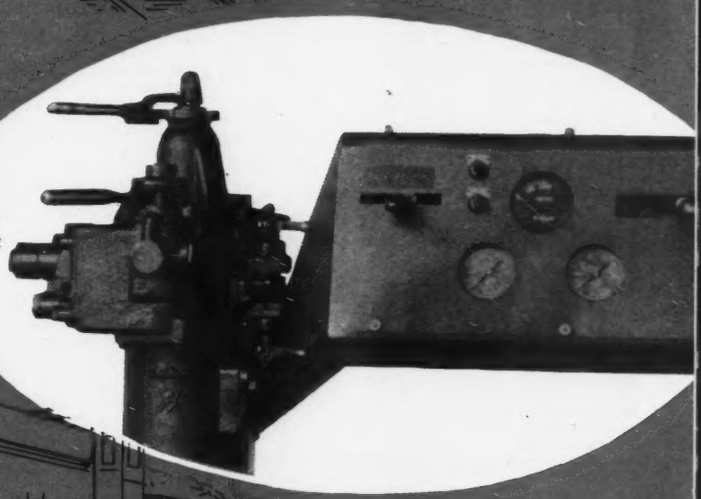
No. 8-ET Equipment

On modern road locomotives the No. 8-ET Equipment, of equally progressive design, is helping to expedite freight traffic today. It gives the engineman an adequate and flexible means for smooth and efficient train handling. Manipulation is easy and convenient, performance consistently reliable, day after day. Its merits have been proved on hundreds of new locomotives in sustained intensive service, and on many reconditioned engines.



Equipment for Switchers

The well-known No. 14-EL Equipment on Diesel switchers helps to facilitate shifting of cars in yards and terminals. A reliable and adequate supply of air is furnished by the 3-CD compressor. Trustworthy performance of all apparatus is a characteristic . . . The No. 6-DS Equipment is an improved form for the same service. Pedestal mounting of brake valve and related devices improves cab appearance and simplifies piping. The independent brake valve is of the self-lapping, instead of manual rotary type—thus permitting maximum flexibility of control . . . Locomotives to which this equipment has been applied, include pneumatic throttle control, to facilitate adjustment of engine speed.



Brakes of the Future . . .

For every notable advance in the character or scope of freight haulage, it has been our privilege to collaborate with the railroads in evolving suitable air brake equipment . . . Transportation demands in today's emergency are chiefly those of quantity, time-saving, and continuity. If the postwar period brings more competitive conditions, the major emphasis may shift to that of operating *economy*. Even then, present-day modernized brakes will meet all these several needs, current and anticipated, within the scope of their applicability . . . However, if new and unusual requirements are encountered, our specific talents and resources will concentrate on the development of such new braking facilities as may be required for continuing Freight Progress.

WESTINGHOUSE AIR BRAKE CO.

WILMERDING, PENNSYLVANIA

Financial

ATLANTA, BIRMINGHAM & COAST.—*Annual Report.*—The 1942 annual statement for this road shows a net income, after interest and other charges, of $317,978, as compared with a net income of $221,152 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
RAILWAY OPERATING REVENUES	$6,035,090	+$1,372,591
Maintenance of way and structures	977,533	+376,448
Maintenance of equipment	902,965	+181,307
Transportation	2,318,581	+461,465
TOTAL OPERATING EXPENSES	4,737,771	+1,081,564
Operating ratio	78.50	+0.08
NET REVENUE FROM OPERATIONS	1,297,319	+291,027
Railway tax accruals	595,326	+191,306
RAILWAY OPERATING INCOME	701,993	+99,721
Net Rents—Dr.	396,382	+7,901
NET RAILWAY OPERATING INCOME	305,611	+91,820
Total other income	33,709	−1,831
TOTAL INCOME	339,321	+89,989
NET INCOME TRANSFERRED TO PROFIT AND LOSS	$317,978	+$96,827

ATLANTIC COAST LINE.—*Annual Report.*—The 1942 annual report for this road shows a net income, after interest and other charges, of $22,619,355, as compared with a net income of $11,132,472 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
RAILWAY OPERATING REVENUES	$115,108,820	+$47,703,568
Maintenance of way and structures	8,085,098	+2,175,335
Maintenance of equipment	16,527,575	+4,282,318
Transportation	32,699,721	+8,760,883
TOTAL OPERATING EXPENSES	62,947,631	+16,088,182
Operating ratio	54.69	−14.83
NET REVENUE FROM OPERATIONS	52,161,189	+31,616,386
Railway tax accruals	27,900,000	+20,250,000
RAILWAY OPERATING INCOME	24,261,189	+11,366,386
Equipment and joint facility rents—Net Dr.	3,065,622	+1,251,772
NET RAILWAY OPERATING INCOME	21,195,567	+10,114,613
Other income	8,369,955	+989,567
TOTAL INCOME	29,565,522	+11,104,180
Interest and rentals	6,561,142	+145,877
NET INCOME	$22,619,355	+$11,486,883

BALTIMORE & OHIO.—*Equipment Trust.*—Halsey, Stuart & Co., Inc., and 16 associated firms have publicly offered an issue of $3,500,000 of Series M equipment trust certificates of this company, maturing serially for ten years, with a coupon interest rate of 3 per cent. The issue is variously priced, depending upon maturity, to yield from 0.875 to 3 per cent. This offering is a portion of a proposed issue of not exceeding $10,760,000.

BALTIMORE & OHIO.—*Extension of Bond Maturity.*—The Clearfield & Mahoning and Buffalo & Pittsburgh, lessor, have applied to the Interstate Commerce Commission for authority to extend from January 1, 1943, to January 1, 1957, the date of the former company's $650,000 first mortgage bonds, all of which, except $4,000, are owned by the Baltimore & Ohio, which proposes to purchase the balance outstanding. As extended, the interest rate on the bonds, guaranteed as to principal and interest by the B. R. & P., would be reduced to 4 per cent from 5, as agreed with the B. & O.

BESSEMER & LAKE ERIE.—*Annual Report.*—The 1942 annual report of this road shows a net income, after interest and other charges, of $2,599,545, as compared with a net income of $6,122,540 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	213.77	−3.19
RAILWAY OPERATING REVENUES	$21,473,389	+$1,093,639
Maintenance of way and structures	1,967,748	+491,303
Maintenance of equipment	7,604,141	+2,325,448
Transportation	3,654,866	+521,362
TOTAL OPERATING EXPENSES	14,039,272	+3,581,650
NET REVENUE FROM OPERATIONS	7,434,116	−2,488,011
Railway tax accruals	5,147,504	+1,089,436
RAILWAY OPERATING INCOME	2,286,612	−3,577,447
Net Rents—Cr.	1,145,458	+97,363
NET RAILWAY OPERATING INCOME	3,432,070	−3,480,084
Total other income	110,417	−29,809
TOTAL INCOME	3,542,486	−3,509,893
Rent for leased roads	10	.....
Interest on funded debt	837,425	−27,796
TOTAL FIXED CHARGES	885,301	+6,612
NET INCOME	2,599,545	−3,522,996
Disposition of net income:		
Dividends	1,421,390	−3,000,831
Miscellaneous Appropriations	149	149
INCOME BALANCE TRANSFERRED TO PROFIT AND LOSS	$1,178,006	−$522,313

CHICAGO & NORTH WESTERN.—*Annual Report.*—The 1942 annual report of this road shows a net income, after interest and other charges, of $9,964,239, as compared with a net income of $1,460,117 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	8,214	−89
RAILWAY OPERATING REVENUES	$138,395,019	+$28,528,558
Maintenance of way and structures	18,270,298	+4,146,174
Maintenance of equipment	23,758,695	+3,397,189
Transportation	45,213,046	+5,248,822
TOTAL OPERATING EXPENSES	94,341,803	+13,475,332
Operating ratio	68.2	−5.4
NET REVENUE FROM OPERATIONS	44,053,216	+15,053,226
Railway tax accruals	17,139,618	+7,875,273
Equipment rents—Net	1,780,447	−1,069,157
Joint facility rents—Net	193,152	+100,187
NET RAILWAY OPERATING INCOME	24,939,999	+8,146,923
Total other income	1,653,997	+94,469
TOTAL INCOME	26,593,996	+8,241,392
Rent for leased roads	563	−4,913
Interest on funded debt	*16,368,210	+132,979
TOTAL FIXED CHARGES	16,440,754	+107,831
NET INCOME CARRIED TO PROFIT AND LOSS	$9,964,239	+$8,504,122

* Includes interest accrued on matured bonds and notes.

CHICAGO, ROCK ISLAND & PACIFIC.—*Annual Report.*—The 1942 annual report for this road shows a net income, after interest and other charges, of $22,234,225, as compared with a net income of $4,644,583 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	7,901.26	−53.38
RAILWAY OPERATING REVENUES	$137,067,138	+$40,104,639
Maintenance of way and structures	14,663,220	+2,118,278
Maintenance of equipment	19,711,580	+3,753,789
Transportation	41,367,119	+8,066,144
TOTAL OPERATING EXPENSES	84,589.244	+15,484,188
Operating ratio	61.71	−9.56
NET REVENUE FROM OPERATIONS	52,477,894	+24,620,452
Railway tax accruals	11,465,449	+5,605,219
RAILWAY OPERATING INCOME	41,012,445	+19,015,233
Equipment rents—Balance Dr.	3,252,762	+131,054
Joint facility rents—Balance Dr.	1,202,573	−56,550
NET RAILWAY OPERATING INCOME	36,557,111	+18,940,729
Non-operating Income	548,788	−187,797
TOTAL INCOME	37,105,899	+18,752,932
Rent for leased roads and equipment	198,352	+220,744
Total Interest	13,530,098	+24,752
NET INCOME TRANSFERRED TO PROFIT AND LOSS	$22,234,225	+$17,589,642

DENVER & SALT LAKE.—*Annual Report.*—The 1942 annual report for this road shows a net income, after interest and other charges, of $83,910, as compared with a net income of $14,432 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	232.15	.....
RAILWAY OPERATING REVENUES	$2,880,759	+$420,879
Maintenance of way and structures	345,148	+12,318
Maintenance of equipment	550,728	+3,160
Transportation	915,580	+142,122
TOTAL OPERATING EXPENSES	1,959,407	+155,934

Net Revenue from Operations	921,352	+264,945
Railway tax accruals	338,308	+38,515
Net Railway Operating Income	1,199,347	+284,012
Total Operating and Other Income	1,212,560	+280,173
Interest, Rents and Miscellaneous	1,128,650	+210,695
Net Income Transferred to Profit and Loss	$83,910	+$69,478

Duluth, South Shore & Atlantic.—*Annual Report.*—The 1942 annual report of this road shows a net income, after interest and other charges, of $60,833, as compared with a net deficit of $283,710 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	549.81	–0.02
Railway Operating Revenues	$4,230,689	+$863,439
Maintenance of way and structures	701,747	+35,961
Maintenance of equipment	610,902	+98,132
Transportation	1,477,071	+330,733
Total Operating Expenses	2,972,068	+477,716
Operating ratio	70.25	–3.83
Net Revenue from Operations	1,258,621	+385,723
Railway tax accruals	224,839	+29,743
Railway Operating Income	1,033,782	+355,980
Net rents—Dr.	86,813	+36,477
Net Railway Operating Income	946,969	+319,503
Total other income	19,289	+8,261
Total Income	966,258	+327,763
Interest on funded debt	900,581	–13,773
Total Fixed Charges	903,369	–15,761
Net Income	$60,833	+$344,543

Emory River.—*New Line Proposed.*—This company has applied to the Interstate Commerce Commission for authority to rehabilitate a logging road from Lancing, Tenn., to Gobey, 6 mi., to construct a new line from Gobey to a mine in the Dean coal seam, 9 miles, and to operate this 15-mile line in interstate commerce.

Gulf, Mobile & Ohio.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $662,062 of 2 per cent promissory notes, payable in monthly installments, in evidence of but not in payment for the unpaid principal on certain equipment contracts, to meet provisions of the federal tax laws.

Louisville & Nashville.—*Bond Redemption.*—This company has called for redemption of $5,000,000 of its outstanding unified mortgage 3¼ per cent bonds, due January 1, 1950. The redemption date is July 1 and the call price is 102.

Maine Central.—*Control of Portland & Ogdensburg.*—Division 4 of the Interstate Commerce Commission has authorized this company to acquire control of the Portland & Ogdensburg, operated by it under 999-year lease, through purchase of a majority of the 43,925 shares of its capital stock by exchange of one $1,000 P. & O. 4½ per cent first mortgage bond for each 40 shares of stock. The Maine Central holds in its treasury all except $444,000 of the $2,119,000 of these bonds outstanding, and guarantees the payment of principal and interest on the issue. The exchange offer had been accepted by 71.8 per cent of the stockholders at the time of the division's order. The transaction is expected to reduce fixed charges under the P. & O. lease by $38,940 gross annually, and is the first step toward eventual purchase of the lessor's property.

Nashville, Chattanooga & St. Louis.—*Annual Report.*—The 1942 annual statement of this road shows a net income of $4,319,615, as compared with a net income of $1,888,517 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	1,107.42	–3.48
Railway Operating Revenues	$30,928,868	+$11,260,101
Maintenance of way and structures	2,954,754	+1,002,924
Maintenance of equipment	5,111,142	+1,843,832
Transportation	9,764,752	+2,408,800
Total Operating Expenses	19,662,787	+5,534,630
Operating ratio	63.57	–8.26
Net Revenue from Operations	11,266,081	+5,725,471
Railway tax accruals	5,047,943	+3,192,403
Railway Operating Income	6,218,138	+2,533,068
Equipment rents—Dr.	734,354	+170,805
Joint facility rents	219,129	+31,232
Net Railway Operating Income	5,702,914	+2,393,495
Non-operating income	198,298	+8,948
Gross Income	5,901,212	+2,402,444
Rent for leased roads	804,404	.....
Interest on funded debt	714,290	–76,785
Total Deductions from Gross Income	1,581,597	–28,655
Net Income	$4,319,615	+2,431,098

Rio Grande & Eagle Pass.—*Sale.*—This railroad, which operates from Laredo, Tex., to Dolores, 23 miles, has been acquired by the H. B. Zachry Company, Laredo, through the purchase of 6,000 shares of stock of the Wright Estate of Philadelphia for $125,000. Directors elected are: H. B. Zachry, W. D. Tiner, J. C. Chandler, Amado Cavazos, all of the H. B. Zachry Company, Reuben W. Davis, H. G. DaCamara, Louis Gabbraith, Charles E. Richter, Jr., and Louis G. Alexander, directors of the disbanded concern. Officers elected are: President, Mr. Davis; vice-president, Mr. Chandler; and secretary-treasurer, Mr. DaCamara. The railroad was constructed in 1883 during the development of cannel coal mines at Dolores, Darwin and Minera.

Dividends Declared

Chestnut Hill.—75¢, quarterly, payable June 4 to holders of record May 20.

Great Northern.—Preferred, $1.00, payable June 21 to holders of record May 24.

New York Central.—50c, payable July 15 to holders of record June 11.

Pittsburgh & Lake Erie.—$2.50, payable June 15 to holders of record May 15.

Abandonments

Atchison, Topeka & Santa Fe.—The Interstate Commerce Commission, by Commissioner Porter, has extended for 30 days to June 16 the effective date of its Division 4 order authorizing this company to abandon its line from Anthony, Kan., to Cherokee, Okla., 32.63 miles, which had already been removed "by exercise of the sovereign power" of the government, in order to consider further petitions for reconsideration filed with the commission by the corporation commissions of Kansas and Oklahoma.

Indiana.—The Wesson Company, Indiana Railroad division, has applied to the Interstate Commerce Commission for authority to abandon its electrified line from a point near Terre Haute, Ind., to Bob-o-link mine, 5.93 miles.

Missouri-Kansas-Texas.—This company's subsidiary, the Missouri-Kansas-Texas of Texas, has applied to the Interstate Commerce Commission for authority to abandon its line from Greenville, Tex., to Mineola, 54.21 miles.

The Missouri-Kansas-Texas of Texas and the Texas Central, lessor, have applied to the Interstate Commerce Commission for authority to abandon operation of and to abandon, respectively, a line from De-Leon, Tex., to Cross Plains, 41.87 miles.

Nashville, Chattanooga & St. Louis.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a branch line from Kingston, Ga., to Rome, 17.7 miles, which was built in 1849, provided that a 40-day period be allowed for purchase of the line at its net salvage value by any party intending to continue its operation.

Construction

Louisville & Nashville.—Forces of the Tennessee Valley Authority have started grading for the relocation of approximately 18 miles of the L. & N., which is necessitated by the construction of the Kentucky dam in the Tennessee river near Gilbertsville, Ky. The relocation consists of two parts, one about 7½ miles long in the Tennessee River valley between McKinnon, Tenn., and Faxon, and the other about 10.8 miles long across the West Sandy Creek valley between Porters, Tenn., and Big Sandy. The relocations will shorten the distance between McKinnon and Porters by 1.06 miles.

The new line requires five bridges. In addition, the bridge across the Tennessee river at Danville, Tenn., will be raised 18.57 ft. and a temporary bridge will be erected 100 ft. downstream for use by the L. & N. while this structure is being raised. The Tennessee Valley Authority is now taking bids for raising this bridge.

News Department continued on second left-hand page

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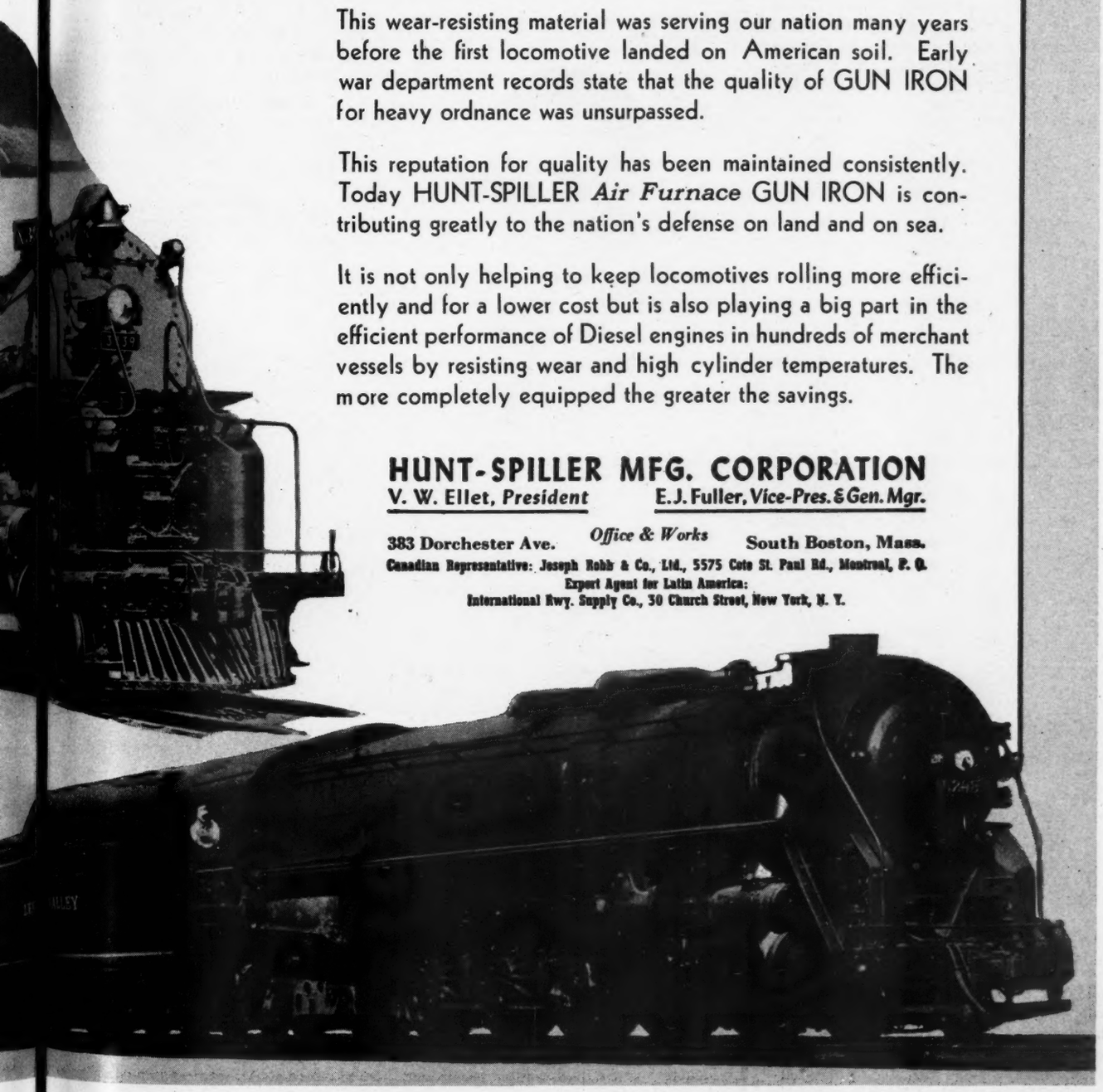

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Railway Officers

EXECUTIVE

W. G. Vollmer, executive assistant of the Missouri Pacific has been elected senior vice-president, with headquarters as before at St. Louis, Mo.

F. J. Fell, Jr., vice-president and comptroller of the Pennsylvania, has been appointed vice-president in charge of accounting and valuation, with headquarters as before at Philadelphia, Pa.

G. G. Moore, vice-president, general manager, secretary, treasurer and purchasing agent of the Galveston, Houston & Henderson at Galveston, Tex., has been elected president, succeeding **G. W. Davison,** who has resigned. **V. J. Gallaher,** auditor and assistant secretary at Galveston, has been elected vice-president, secretary and auditor.

J. B. Large, general traffic manager of the Pennsylvania at Philadelphia, Pa., and **H. C. Oliver,** freight traffic manager at Pittsburgh, Pa., have both been appointed assistant vice-presidents in charge of traffic, with headquarters at Philadelphia and New York, respectively. Mr. Large was born on August 18, 1882, at Philadelphia, ond was educated at the Protestant Episcopal Academy of Philadelphia and attended the Wharton School of Finance of the University of Pennsylvania for a year. He entered railway service in October, 1902, as clerk of the Pennsylvania at Germantown Junction, and the following year was transferred to the rate room in the general office at Philadelphia. From 1906 until 1916, Mr. Large held various positions in the freight department, and on October 15, 1917, he was appointed assistant general freight agent of the Lines East of Pittsburgh and Erie, Pa. The

J. B. Large

following month he was advanced to general freight agent. At the termination of the period of federal control of the railroads, in March, 1920, Mr. Large was appointed freight traffic manager of the Eastern region. In August, 1925, he was promoted to the position of assistant general traffic manager of the Pennsylvania system, and in October, 1927, he was further advanced to general traffic manager at Philadelphia, the position he was maintaining at the time of his recent appointment as assistant vice-president in charge of traffic.

Mr. Oliver was born on September 10, 1886, at Shreve, Ohio, and attended Carnegie Institute of Technology at Pittsburgh. He entered railroad service as an employee of the Pennsylvania at Canton, Ohio, on May 1, 1902, subsequently serving on the engineering corps at Pittsburgh for several months. He was employed in the North avenue freight station at Allegheny, Pa., for three years and in the general freight office at Pittsburgh for 11 years.. On September 10, 1917, he was furloughed for military service being commissioned a captain of infantry and served in France with the American Expeditionary Forces for 16 months. He was dis-

H. C. Oliver

charged on June 1, 1919, remaining in the Officers' Reserve Corps with the rank of major of infantry, and returned to railroad service as special agent in the office of the assistant freight traffic manager of the Western lines of the Pennsylvania, under the United States Railroad Administration. On March 1, 1920, upon the termination of federal control, Mr. Oliver was appointed division freight agent of the Pennsylvania at Richmond, Ind., and on August 1, 1921, was transferred to Toledo, Ohio. He was appointed general freight agent at Pittsburgh on August 1, 1925, and on October 16, 1927, was advanced to freight traffic manager, becoming traffic manager on July 1, 1928. Mr. Oliver was appointed freight traffic manager at Pittsburgh on May 30, 1932, and remained in that capacity until his recent appointment as vice-president in charge of traffic.

OPERATING

W. B. Simmons, assistant superintendent of the LaCrosse division of the Chicago, Burlington & Quincy at Daytons Bluff, Minn., has been promoted to superintendent of the St. Louis Terminals, with headquarters at St. Louis, Mo., succeeding **A. J. Horton,** who has been transferred to the St. Joseph division at St. Joseph, Mo. **F. B. Whitman,** superintendent of the St. Joseph division, has been transferred to the McCook division, with headquarters at McCook, Neb., replacing **L. E. Caldwell,** whose death on May 4 is reported elsewhere in these columns. **L. L. Smith,** assistant superintendent of the McCook division, has been transferred to the LaCrosse division, succeeding Mr. Simmons.

W. H. Young, chief clerk to the terminal trainmaster of the Central of Georgia, has been promoted to terminal trainmaster, with headquarters at Savannah, Ga., succeeding **J. E. Tussey,** who has retired at the age of 70, after 47 years of railroad service.

F. A. Pouliot, assistant to the general superintendent of the Quebec district of the Canadian Pacific, has been appointed superintendent of the Laurentian division, with headquarters as before at Montreal, Que., succeeding **J. R. Kimpton,** who has been transferred.

A. C. Nelson, trainmaster of the New York Central at Toledo, Ohio, has been promoted to assistant superintendent of the Cleveland division, with headquarters at Cleveland, Ohio, succeeding **E. J. Gibbons,** whose promotion to superintendent of the Cleveland division was reported in the *Railway Age* of April 17.

W. L. Hunt, assistant trainmaster of the Chicago, Rock Island & Pacific at Enid, Okla., has been promoted to trainmaster with headquarters at Eldon, Mo., succeeding **Charles Fowler,** whose appointment as assistant director of rail terminals at Phoenix, Ariz., for the Office of Defense Transportation was reported in the *Railway Age* of April 10.

FINANCIAL, LEGAL AND ACCOUNTING

R. C. Miller, assistant chief engineer of the Pennsylvania, has been appointed

R. C. Miller

comptroller, with headquarters as before at Philadelphia, Pa., succeeding **F. J. Fell, Jr.,** whose appointment is noted elsewhere in these columns. **Elmer Hart,** deputy comptroller, has been appointed general

News Department continued on next left-hand page

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auditor at Philadelphia, and both **H. J. Ward,** assistant comptroller, and **P. D. Fox,** auditor of disbursements, have been appointed deputy comptrollers, also at Philadelphia. **I. F. Murphy,** assistant auditor of disbursements has been appointed auditor of disbursements, while **Alvin Babe,** chief clerk to vice-president and comptroller, has been appointed assistant auditor of disbursements. Mr. Murphy and Mr. Babe will maintain headquarters at Philadelphia. Mr. Miller was born in 1878, at Zanesville, Ohio, and was graduated from Ohio State University (C.E. 1901). While at college he got his first practical contacts with railroading by working during the summer vacations as an assistant on the Zanesville division engineering corps. Entering the permanent service of the railroad as an engineering corps assistant at Pittsburgh in 1901, Mr. Miller subsequently served in engineering posts on the Indianapolis, Marietta, Logansport, Toledo, St. Louis and Chicago Terminal divisions of the western lines and on the Philadelphia and New York divisions in the east. He was advanced to superintendent of the Schuylkill division in 1926 and subsequently headed the Toledo and Columbus divisions. From 1930 to 1931 he was acting assistant chief engineer, with headquarters at Philadelphia, and was appointed general superintendent of the Southwestern division at Indianapolis in the latter year, later being transferred to Pittsburgh. In 1940 Mr. Miller became assistant chief engineer at Philadelphia, the position he was maintaining at the time of his recent appointment as comptroller.

H. J. Gerdes has been appointed assistant auditor freight receipts of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

TRAFFIC

Harold W. Gray has been appointed general agent of the Erie at Memphis, Tenn., succeeding **Robert L. Miller,** who has been furloughed for military service.

Arthur H. Lund, general agent of the Western Pacific at Spokane, Wash., has been transferred to Seattle, Wash., succeeding **F. B. Stratton,** who has joined the armed forces.

James L. Carr, general west coast agent of the New York, Ontario & Western has been appointed general western freight agent with headquarters as before at San Francisco, Cal.

W. McL. Pomeroy, assistant general traffic manager of the Pennsylvania, has been appointed general traffic manager; **J. T. Carbine,** coal traffic manager, has been appointed general traffic manager—coal, and both **Fred Carpi,** assistant to the general traffic manager and **W. W. Finley, Jr.,** freight traffic manager at New York, have been appointed assistant general traffic managers, all of the above named officers to maintain headquarters at Philadelphia, Pa. **R. H. Miller,** general freight agent has been appointed freight traffic manager, with headquarters as before at Pittsburgh, Pa.

I. T. Marine, general freight agent of the Pennsylvania at Chicago, has been promoted to western freight traffic manager, with the same headquarters, succeeding **R. J. Wood,** who has been advanced to freight traffic manager at New York. Mr. Marine was born in Philadelphia on June 15, 1898, and entered the service of the Pennsylvania as a clerk at Morrisville, Pa., on October 26, 1914. He later became an account clerk and on July 22, 1918, was furloughed for military duty. Returning to the Pennsylvania on August 29, 1919, he was sent to New York in 1920, becoming a freight representative the following year. Mr. Marine was promoted to assistant foreign freight agent at New York in 1931, became freight representative in 1932, served as chief clerk at Harrisburg, Pa., and New York in 1934, and was promoted to division freight agent at Cincinnati on May 1, 1936. He was transferred to Youngstown, Ohio, on April 16, 1938, and was advanced to general western freight agent at Chicago on October 1 of that

I. T. Marine

year. In June, 1940, he was promoted to the position he held at the time of his new appointment, effective May 16.

MECHANICAL

H. C. Foster, traveling fireman on the Hinton division of the Chesapeake & Ohio, has been appointed road foreman of engines of the Allegheny, Greenbrier and Hot Springs sub-divisions, with headquarters at Clifton Forge, Va.

B. J. Weismer, car department foreman of the Delaware, Lackawanna & Western at Secaucus, N. J., has been appointed division car foreman at Hoboken, N. J., with jurisdiction over the Morris and Essex division.

W. W. Lyons, master mechanic of the Pecos division of the Atchison, Topeka & Santa Fe, has been transferred to the Western division, with headquarters at Dodge City, Kan. **L. B. Johnson,** master mechanic of the Slaton division, has been transferred to the Pecos division, succeeding Mr. Lyons, and **H. E. Anderson,** master mechanic of the Western division, has been transferred to the Slaton division, replacing Mr. Johnson.

OBITUARY

L. E. Caldwell, superintendent of the McCook division of the Chicago, Burlington & Quincy, died on May 4, at McCook, Neb.

James R. Pickering, superintendent of transportation of the Chicago, Rock Island & Pacific at Chicago, died at his home in that city on May 13, at the age of 68.

Robertson Creelman, who retired in 1940 as passenger traffic manager of the Western region of the Canadian National, with headquarters at Winnipeg, Man., died at Winnipeg on April 10.

William Shea, who retired on May 1, 1941, as superintendent of track maintenance of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, died of a heart ailment at Iowa City, Iowa, on May 13 after an illness of about 10 days.

Frederick Van Note, controller of the Southern Pacific, with headquarters at New York, and a director of the St. Louis Southwestern and the Pacific Fruit Express Company, died on May 13, at a hospital in Jamaica, N. Y. Born on October 11, 1878, at Farmingdale, N. J., Mr. Van Note attended Rider's Business College, Trenton, N. J., and New York University, School of Commerce, Accounts and Finance. He entered railway service in February, 1899, as an employee of the Lehigh Valley, and served that road successively as assistant cashier, freight department; clerk, general manager's office, and chief clerk, superintendent's office until 1904. In 1905, Mr. Van Note entered the service of the Southern Pacific as clerk in the controller's office. In 1907 he became secretary and general auditor of the Amer-

Frederick Van Note

ican Telegraph Company, and in August, 1909, he returned to the Southern Pacific as chief clerk in the controller's office. Subsequently he became special accountant and assistant controller, and in August, 1932, he was appointed controller of the Southern Pacific, the position he was holding at the time of his death.